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New York State Museum

JOHN M. CLARKE, Director
EPHRAIM PORTER FELT, State Entomologist

Bulletin 110

ENTOMOLOGY 28

22d Report of the State Entomologist

ON

INJURIOUS AND OTHER INSECTS

OF THE

STATE OF NEW YORK

1906

TRANSFERRED

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New York State Education Department
Science Division, December 24, 1906

Hon. Andrew S. Draper LL.D.
Commissioner of Education

SIR: I have the honor to communicate herewith the report of the State Entomologist for the fiscal year ending September 30, 1906.

Very respectfully
JOHN M. CLARKE
Director

State of New York
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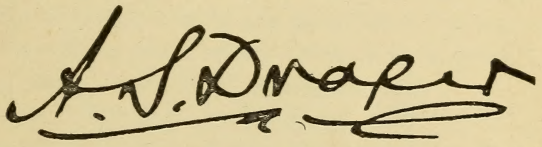
Approved for publication this 28th day of December 1906



Commissioner of Education

New York State Education Department

New York State Museum

John M. Clarke, Director
Ephraim Porter Felt, State Entomologist

Bulletin 110

ENTOMOLOGY 28

22d REPORT OF THE STATE ENTOMOLOGIST 1906

To John M. Clarke, Director of Science Division

I have the honor of presenting herewith my report on the injurious and other insects of the State of New York for the year ending October 15, 1906.

The season of 1906 has been marked by relatively few extensive depredations by insect pests. This is particularly true of the forms affecting garden, vegetable and other common farm crops. A remarkable large South American moth (Thysania zenobia Cramer) was taken in Albany the last of September. This magnificent moth has a wing spread of about 5 inches and its occurrence in this city is undoubtedly due to its having been brought north with a boat load of bananas or other tropical fruit. This capture is an example of the way in which insects are distributed through commercial agencies, though in the present instance it happens to be a species which can not sustain itself in this latitude.

Fruit tree insects. The San José scale is still regarded as a serious pest of the horticulturist, though the experience of recent years has demonstrated beyond question the practicability of keeping this insect in check by thorough and timely applications of a lime-sulfur wash. Our experiments conducted during a series of years show this insecticide to be fully as satisfactory as any other material which has been employed, despite the fact that a number of new preparations have been put on the market in recent years. These latter, though they possess certain very desirable qualities, have not been tested sufficiently so that they can be recommended without qualification.

We find the grape root worm still abundant in the Chautauqua region and the present indications are that some vineyards may be seriously injured by its depredations within a year or two. This

insect, as experience has shown, is more or less local in its operations and general predictions regarding its work are in most cases rather hazardous.

Shade tree problem. This phase of practical entomology has made considerable demands upon our time in the last few years. This has been due in large part to extensive defoliations of street and park trees in many cities and villages of the State by the white marked tussock moth, a species which rarely occurs in destructive numbers outside of municipalities and villages, and one easily controlled by intelligent effort. The elm leaf beetle has been particularly destructive in the Hudson valley and has become established in cities and villages in other portions of the State. The work of these leaf feeders and their allies has created a great demand for information along these lines. A number of popular articles have been sent to the local press in various parts of the State, urging the adoption of comprehensive measures for the protection of trees. It is gratifying to state that considerable interest has been aroused and most commendable efforts made to protect the trees. The city of Albany, in its budget for 1907, has made provision for the employment of a forester who will be charged with the general care of the trees. This plan, if carried out, provides for the protection of the trees from year to year — something which we have been advocating for some time. This is by far the most satisfactory way to care for street and park trees and we hope soon to see other cities and many villages adopting the same method. A special bulletin, treating of the elm leaf beetle and white marked tussock moth and giving summary accounts of each, has been prepared and will be issued shortly. More extended accounts of these and other insect enemies of shade trees are given in our recent publication on *Insects Affecting Park and Woodland Trees* [N. Y. State Mus. Mem. 8], a quarto work of two volumes comprising about 1000 pages, illustrated by 72 plates (20 colored) and over 200 text figures.

Gipsy and brown tail moths. These two dangerous insects, thoroughly and widely established in eastern New England, have been the objects of considerable attention at our hands. The gipsy moth in particular is a most dangerous leaf feeder and has excited much interest. Owing to the fact that this latter species has been very destructive in eastern Massachusetts and is still extending its range, it was deemed wise to distribute in many sections of the State a warning placard briefly describing the insect and the associated brown tail moth. This latter displays a marked preference

for fruit trees and is very annoying on account of the intense irritation produced by the urticating hairs of the caterpillar. The placard was supplemented by a bulletin [N. Y. State Mus. Bul. 103] giving more detailed information concerning these pests, with the result that many specimens of various insects were sent to the office for determination. The newspapers of the State cooperated most efficiently in disseminating information relating to these dangerous forms. It is gratifying to state that, so far as we have been able to discover, there is no ground for believing that either the gipsy moth or its destructive associate, the brown tail moth, has become established anywhere in New York State, though it would not be surprising were one or both of them to obtain a foothold in the near future. It is very important that our citizens should know about the gipsy moth in particular and be prepared to suppress the pest upon its first appearance.

Aquatic insects. The earlier investigations of this group have been continued. Dr James G. Needham has an extensive monograph on the stone flies (Plecoptera) nearly completed. This important work will prove an extremely valuable addition to our knowledge of a hitherto much neglected group. Dr Cornelius Betten, who has been giving special attention to the Caddis flies (Trichoptera) for the past five years, continued his studies last summer at Buffalo and Ogdensburg. These insects are an important element of fish food and, in addition, are of considerable local importance in the city of Buffalo. They breed in such large numbers in the rapids of the Niagara river that each summer the adults belonging to this group and the not distantly related May flies (Ephemeridae) swarm by the millions in portions of the city near the river front. The insects are so abundant as to prohibit outdoor painting during certain portions of the season. These flies were one of the factors which led to the locating of the Pan-American Exposition some distance from their breeding places. Dr Betten has given particular attention to this local phase of the problem and he is now engaged in preparing an exhaustive account of this very interesting and in some respects important group.

Gall midges. These minute, inconspicuous insects, belonging to a family comprising a large number of species have been subjects of careful and extensive investigations by the Entomologist and his assistants. Certain forms, like the Hessian fly and wheat midge, are of prime economic importance. The former is well known as an exceedingly destructive enemy of certain varieties of

wheat, and in 1901 caused an estimated loss in New York State alone of $3,000,000. The wheat midge in earlier years was also exceedingly destructive to this important grain crop. During the last decade another member of this family, the violet gall midge, has become a dangerous enemy of the extensive violet-growing industry, which has its most important center at Rhinebeck, N. Y. The members of this group are better known because of the many remarkable vegetable deformities they produce, and the adult insects present some extremely interesting morphologic variations. Continued and thorough collecting of these forms has resulted in the accumulation of a large amount of material. A recent catalogue lists less than 150 species as being native to North America, whereas our recent work has resulted in finding in New York State alone probably over 400 species, including therein representatives of genera hitherto unrecognized in this country, and presumably of others previously unknown. A clearer idea of the extent of our work may possibly be gained from the following: Mr J. R. Gillett, a medical student, was engaged during the entire summer in making some 2000 excellent microscopic preparations of these insects. These large additions to our collection will result in extremely important contributions to our knowledge of this hitherto relatively unknown group. The value of this work has been greatly increased by the enthusiastic and intelligent collecting of Assistant Entomologist Young and Assistant Nixon.

Publications. The Entomologist has contributed numerous economic articles to the agricultural and local press. The report of the office for 1904, owing to delays, did not appear till early in the fiscal year, and that for 1905 was not issued till September 1906. A special bulletin giving a summary account of the gipsy and brown tail moths [Mus. Bul. 103] was issued in midsummer and the first volume of *Insects Affecting Park and Woodland Trees* [N. Y. State Mus. Mem. 8] appeared in February. The proofreading and verification incident to the second volume going through the press has made large demands upon our time and it is a pleasure to state that this extensive work is now practically completed and will appear within a few weeks. Another important paper entitled *Diversities among New York Mosquitos* was reprinted from the *Year Book for 1904–1905* of the American Mosquito Extermination Society.

Collections. Some exceptionally valuable additions have been made to the State collections aside from those secured in prose-

cuting the special investigations mentioned above. A very fine collection of parasitic wasps (Chrysididae) was received from A. Mocsary, Budapest, Hungary, and a valuable addition to our Tachina flies from Dr Mario Bezzi of Italy. Some exceedingly desirable mosquitos from the south and southwestern part of this country, from Jamaica and the Philippine Islands were obtained through various correspondents of the office.

The special collections made by the members of the office staff in the Cecidomyiidae, mentioned above, have resulted in enormous additions to this group. The work upon the State collections has continued with unabated vigor and the general condition of the collections has been much improved, particularly in the families Ortalidae, Trypetidae, Dolichopodidae and Ephydridae. The representatives of the latter groups have been determined by Assistant Entomologist Young. The midges (Chironomidae) have received considerable study at the hands of Assistant I. L. Nixon, who has also devoted much time to the general arrangement and classification of the Coleoptera.

Office work. The general work of the office has been conducted about as in preceding years, the Assistant Entomologist taking charge of the correspondence during the absence of the Entomologist. The popular interest aroused in the search for the gipsy and brown tail moths in this State resulted in a great many insects being sent in for determination. This work devolved very largely upon Mr Young. A well sustained interest is shown by the correspondence: 2120 letters, 1284 postals, 215 circulars and 3317 packages were sent through the mails and 208 packages were shipped by express.

Nursery certificates. The practice of recent years has been continued and nursery certificates for persons desiring to ship into the state of Virginia indorsed by the State Entomologist upon the request of the State Commission of Agriculture. The following is a list of firms to whom these nursery certificates were issued during 1906: The Rogers Nurseries, Stark Bros., Bryant Bros., George A. Sweet, Morey & Son, G. W. Whitney & Co., Sheerins Wholesale Nursery, all of Dansville; Wheelock & Clark, T. S. Hubbard Co., George S. Joselyn, L. Roesch, Foster & Griffith, F. E. Schifferli, all of Fredonia; Reliance Nursery Co., The R. G. Chase Co., The M. H. Harman Co., all of Geneva; Jackson & Perkins Co., Newark; Stark Bros., Portland; Brown Bros. Co., Green Nursery Co., Charles V. Wyman, Ellwanger & Barry,

Western N. Y. Nursery Co., T. W. Brown & Son Nursery Co., Chase Bros. Co., Perry Nursery Co., The Bay Nursery, McGlemon & Kirby, The Hawk's Nursery Co., H. S. Taylor & Co., all of Rochester.

Voluntary observers. These correspondents of the office have continued to send reports throughout the growing season and a number of valuable facts were brought to our notice in this way. These records increase in value with the advance of years.

General. The office is indebted to Dr L. O. Howard, Chief of the Bureau of Entomology, United States Department of Agriculture, and to members of his staff for kindly determining various insects submitted to them throughout the year.

In conclusion it may be stated that the enthusiastic cooperation of voluntary observers and others in touch with the office, the increased correspondence, and the great demand for our publications indicate a well sustained interest in this branch of scientific work.

Respectfully submitted

Ephraim Porter Felt

State Entomologist

Office of the State Entomologist, Albany, October 15, 1906

NOTES FOR THE YEAR

The following summarized accounts treat of some of the more interesting forms observed during the season. An unusual occurrence was the capture in Albany of a large South American moth (Thysania zenobia Cramer) which is represented in the natural size on plate 1. This species was undoubtedly brought to Albany with a boat load of tropical fruit. More common forms observed during the year have been grouped together under appropriate heads as in previous reports.

Fruit insects

Yellow-necked appletree caterpillar (Datana ministra Drury). This common leaf feeder is more or less abundant in orchards from year to year, and during the past season, caterpillars were received the latter part of July and throughout August, from various sections of the State. The young of this insect feed in clusters and, as a consequence, their depredations are more apparent than those of the more solitary feeders. Injury can frequently be prevented by cutting infested tips bearing clusters of caterpillars and crushing the pests, or recourse may be had to treatment with arsenical poisons. The sprayings ordinarily given for the control of the codling moth and early spring leaf feeders, are usually amply sufficient to prevent this species from inflicting any material injury.

Red-humped appletree caterpillar (Schizura concinna Abb. & Sm.). This rather common leaf feeder is more or less prevalent in orchards of the State, and numerous specimens were sent from different sections from late July throughout August. It is very rarely that this insect is abundant enough to cause any appreciable damage, and ordinarily the sprayings given for the control of the codling moth and the earlier leaf-feeding insects are amply sufficient to keep this species in check.

Gipsy and brown tail moths (Porthetria dispar Linn., Euproctis chrysorrhoea Linn.). These two insects have aroused considerable apprehension in New York State in the last two or three years. This is particularly true of the gipsy moth, since the automobile has become so popular, because experience has shown this vehicle to be a most efficient agent in disseminating this destructive leaf feeder. This insect is steadily extending its range, having become well established in southern New Hampshire, made its way west in Massachusetts to Maynard,

Stowe and Marlboro, and a colony has been found at Stonington, Ct. The brown tail moth flies readily and has already become established in the Connecticut valley. There is no knowing when either of these insects may enter New York State, and owing to the importance of detecting their presence as soon as possible, it was deemed advisable to issue a warning placard, figuring in colors and giving the salient characteristics of each. It was distributed early in July. The placard was supplemented by Museum bulletin 103, which gives a summarized account of both insects and their work. The reader is referred to this publication for further details respecting these dangerous pests.

These two publications aroused much interest among all classes. The press cooperated in a most satisfactory manner, most of the local papers publishing extracts from either the placard or the bulletin, and some giving rather extended accounts culled from these publications. A large number of people were interested and many leaf-feeding caterpillars in particular were sent to the office for identification. Reports of serious injuries by supposed gipsy moth were published by various newspapers during the summer, but without exception it was found that the ravages were due to the work of some other pest and that it was therefore a case of mistaken identity. The efforts outlined above were supplemented by special inspection by Assistant I. L. Nixon, about the railroad yards of New York city and vicinity, Poughkeepsie, Albany, Rensselaer, Karner, Troy, Watervliet, Cohoes, Schenectady, Mechanicville and Rotterdam Junction without finding any signs of these insects. This examination showed beyond question that so far as most of these yards are concerned there was very little opportunity for the gipsy moth, carried either as eggs or caterpillars, becoming established, as there was not much available vegetation in the near vicinity of most of the tracks. It is a source of gratification to state that, so far as known at the present time, neither the gipsy moth nor its associate, the brown tail moth, has become established in New York State. There is still great danger of these pests becoming established within our boundaries, and we would therefore bespeak the further cooperation of all interested in the subjection of insect enemies, since a relatively small effort at the outset may prevent enormous losses later.

A personal inspection of the infested region in eastern Massachusetts during July showed that conditions generally were much better than they were the preceding season, or in fact at any time within the last two or three years. There has been a most hearty

cooperation between local authorities and State officials in Massachusetts, and as a consequence the numbers of both pests have been largely reduced, in spite of the fact that they were exceedingly abundant the preceding summer. Some extended woodland tracts were completely defoliated, and the control of the gipsy moth in such situations is still a grave problem. The federal government is cooperating with the state of Massachusetts in an effort to prevent the further spread of the insect as well as in studying its natural enemies. It is proposed to keep all trees near highways as free from these insects as possible, in order to prevent their being carried into new territory by users of the highways. This alone should reduce very largely the danger of the gipsy moth becoming established in other sections.

A serious effort has been made to secure natural enemies. Dr L. O. Howard, Chief of the Bureau of Entomology, United States Department of Agriculture, has an extensive acquaintance with foreign entomologists, and this enabled him to secure the services of a number of skilled specialists for the collection and shipment to this country, of large numbers of parasites of both the gipsy and brown tail moths. Shipments were sent directly to Sup't A. H. Kirkland and installed in the parasitic laboratory at Saugus. The insects were carefully bred out, the dangerous secondary hyperparasites destroyed and the beneficial forms reared in cages, and those abundant established under favorable conditions in the open. The results obtained during the season of 1906 have been very successful, in that several important natural enemies have completed their life cycle in this country and it now only remains to ascertain whether they can stand the rigors of the New England winter and multiply sufficiently to be of material service in checking these two pests. The outlook for this line of work is certainly very encouraging, and so far as controlling these insects in woodlands is concerned, it appears to be the most practical way of attaining this much desired end.

Oriental slug caterpillar (Cnidocampa flavescens Walk.). This slug caterpillar was discovered in the vicinity of Boston at Dorchester, Mass. in 1906 and careful examination showed that it had become established over a territory about 2 miles long and 1½ miles in breadth. It appears to be a species that can sustain itself readily in this latitude, though, as our native slug caterpillars rarely become abundant enough to cause any material injury, it is hoped that the same may be the case with this

introduced form. This leaf feeder was probably brought into the country on Japanese nursery stock and Dr. H. T. Fernald, writing on the same, states that it has an extended distribution in the Orient, occurring in Japan, on the Island of Yezo and southward at least as far as Yokohama. It also occurs in China near Pekin, where it is very abundant, and it has been reported as far south as the Yiangtse-Kiang river, just north of the 30° of latitude. This distribution would indicate that the insect will probably be able to exist all over the United States except the peninsula of Florida, north of Mexico and in southern Canada. Its eastern food plants are Celtis, birch, elm and Japanese persimmon. It was found mostly in this country on Norway maples, pear, apple and cherry, though it also occurred on crab apple, willow, black birch, oak-leaved white birch, oak, American elm, Wahoo elm, blackberry, beech, poplar, mountain ash and buckthorn. This data is culled from a recently issued bulletin by Dr Fernald.[1]

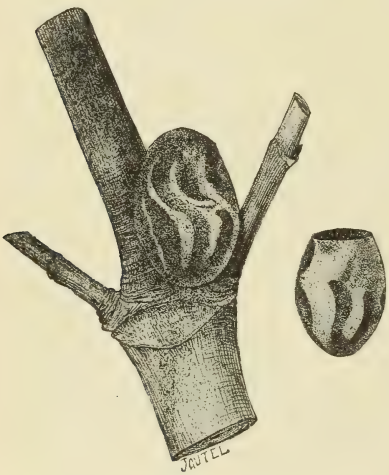


Fig. 1 Cocoons of oriental slug caterpillar; the larger probably female, on the twig; the smaller, probably male, empty, both enlarged (Original)

The cocoon is an oval structure with peculiar broad white stripes [fig. 1]. One specimen was found on a recent importation of Japanese maples in a greenhouse at Albany, though there is no evidence to show that the insect has become established in the open in this vicinity. It appears to be a common species in Japan. We have been informed of earlier importations of Japanese maples bearing similar, possibly identical, cocoons, so it would not be surprising were subsequent investigation to show that this slug caterpillar was already established in several widely separated localities.

Scurfy scale (Chionaspis furfura Fitch). This whitish, scurfy or chafflike scale continued abundant in the Hudson valley, being specially numerous in the vicinity of Annandale, where it caused considerable apprehension because many people mistook it for the San José scale, Aspidiotus perniciosus Comst., a species which has become well established in Germantown

[1] Hatch Exper. Sta. Mass. Agr. Col. Bul. 114. Jan. 1907.

and vicinity, only a few miles to the north. The scurfy scale, for some reason, has been abnormally abundant in this section, affecting mostly young fruit trees. Experience has repeatedly shown the practicability of controlling this pest by timely applications of contact insecticides, either whale oil soap or kerosene emulsion, the latter part of May or early in June at the time the minute, reddish young are crawling in large numbers.

San Jose scale (Aspidiotus perniciosus Comst.). This insect is one of prime importance to the small as well as the large fruit grower. The latter, if he is to continue in business and has infested orchards, must find some way of controlling the pest. The small fruit grower will soon find his fruit of very little value if this insect is allowed to breed unrestricted on the trees for a period of several years. The experiments and experience of the past decade have shown beyond all question the practicability of controlling this dangerous scale insect. The weight of evidence is decidedly in favor of employing a lime-sulfur wash which, if properly prepared and thoroughly applied, will give fully as satisfactory results as any other preparation. Recent experience has demonstrated the absolute necessity of great care in the making of this compound and thoroughly emphasized the value of most careful application.

Several experiments were conducted the past season, largely for the purpose of determining whether the lime-sulfur wash could be further modified to advantage. A lime-sulfur wash was made in the normal manner except that the ordinary burnt lime of this vicinity was replaced by a finely prepared hydrated magnesium lime known as limoid. The results were decidedly adverse to the employment of this material despite its improved physical condition. The reaction between the limoid and the sulfur was not nearly so vigorous, even when hot water was employed.

The following formula was used with very satisfactory results: 20 pounds of lime, 15 pounds of sulfur, 12 pounds of sal soda with 50 gallons of water. Half amounts were taken, the materials mixed together dry, and then two pails of hot water added. The reaction began in about two minutes and was quite vigorous though no cold water was necessary to keep the mixture within a half barrel. The compound was very satisfactory and there was very little sediment. This wash was applied April 13 to both moderately and very badly infested apple trees. An examination May 19 showed that this wash adhered fully as well as the others and

the same was true the 31st. A few living scale insects were found only after considerable search, whereas on the trees sprayed with the other washes there was not much difficulty in finding live scales. October 15 the trees treated with this preparation had some living insects on the more inaccessible portions. There appeared to be absolutely none on the accessible limbs which were more thoroughly sprayed than those on the other side. The general results were very satisfactory indeed.

Another formula, calling for 6½ pounds lime, 5 pounds sulfur and 2 pounds caustic soda with 16 gallons of water was prepared as follows: The dry materials were mixed together and then two pails of hot water added thereto. The reaction was very violent and the liquid was coloured a very dark red. There was little evidence of the greenish monosulphid. The combination was good though there was considerable sediment. It was applied April 13 to several plum trees which had badly infested limbs and on the 16th it was seen that the application had been very thorough. An examination May 31 resulted in finding a few living scale insects on these trees without much difficulty, and October 15 it was seen that there were very few living scales — in fact the treatment was very satisfactory. There was very little or no difference to be detected between these trees and those sprayed with the wash described above.

The third formula, calling for 20 pounds limoid, 15 pounds sulfur and 6 pounds caustic soda with 50 gallons water was used in one half the usual quantity. The dry materials were mixed together and the reaction started with two pails of hot water. It was prompt but very limited, owing to the fact that the limoid added very little to its vigor. The boiling seemed to be due almost entirely to the presence of the caustic soda. This preparation, after standing about two hours, was a light orange color with a somewhat greenish tint. It kept hot during this time. There was much sandy sediment and considerable undissolved sulfur or sulfur-lime. Perhaps 1 pound of the entire amount was in this condition. This wash was applied April 13 to apple trees with some limbs badly infested. May 9 this wash did not seem to have adhered as well as the others, and on the 31st it was not very difficult to find living scale insects. October 15 the trees sprayed with this mixture had distinctly more living scale insects than those treated with either of the above preparations in spite of the fact that the infestation was lighter than the others. There is no doubt

but that the limoid-soda combination destroyed many scale insects, though it was not as efficient as a wash where good quicklime was employed.

A general survey of Mr L. L. Morrell's orchard at Kinderhook showed that the same was in most excellent condition. This gentleman states that he has less scale on his trees than at any time in the past six years, and the excellent condition of his orchard sustains his statement. Mr Morrell is very well satisfied with the lime-sulfur wash though he is convinced that nothing but most thorough work, both in preparation and application, will give the desired results.

The control of this insect in old orchards is a problem that demands further attention. Mr W. H. Hart of Poughkeepsie, who has had this scale in an orchard of large trees for some years, has succeeded in keeping the pest well within bounds provided he was able to spray one side with the aid of a favorable breeze and then treat the other when the wind was in an opposite direction. This treatment was very satisfactory for the lower limbs and branches, but with the apparatus at hand it was found almost impracticable to successfully spray the higher limbs; consequently some of these were badly infested by the scale and eventually seriously injured. The tops of some of his large trees were mostly removed in the spring of 1905 before spraying was attempted, and during the summer they were in excellent condition. Certain other trees had the tops at this time in a very poor condition owing to injury by the scale and they were accordingly cut back in the spring of 1906 with equally beneficial results. It appears very probable that a large tree can be cut back to a greater extent than has been hitherto thought possible, provided some care is exercised. It may be that experience will show that this operation can be more safely performed after the upper portion of the tree has suffered somewhat from scale attack than if the attempt is made to cut it back while the tree is in unabated vigor.

Several oil preparations, popularly known as "soluble oils," have been put on the market in recent years, and some very sweeping claims made in regard to the same. One of the foremost of these, known as "scalicide," has been under observation during the season and a rather large orchard of young trees in the Hudson river valley was sprayed with this material. A few of the trees were rather badly infested by the scale, but most of them were comparatively free. An examination of the infested trees in October

showed that a few living scale insects occurred here and there. There was also some evidence of oil injury, though it is impossible at the present time to state whether this is great enough to be a permanent detriment. This can be determined only by subsequent observations and treatment. Another tree in the central part of the State, most thoroughly sprayed several times with this preparation, was entirely free from living scale insects though evidence of oil injury was a little more marked than in the first mentioned instance. These preparations are worth experimenting with though conclusions should be drawn with the greatest care. A few years ago we were told that crude petroleum could be applied in a diluted form without injury to trees and for a while this was accepted as true, but the work of later years has shown this to be erroneous, except possibly under unusually favorable circumstances. The so called "soluble oils" presumably differ not very much from those employed in earlier years, except that they have been brought into a very finely emulsified condition. There is danger that successive annual applications to trees may eventually result in serious injury, and a word of warning in regard to these preparations is therefore timely.

Grapevine root worm (Fidia viticida Walsh). This destructive enemy of the vineyardist continues abundant in the Chautauqua region and during the past season has been exceptionally numerous in certain vineyards. It is, as experience has shown in the past, such a local insect that one part of a vineyard may be very badly infested and another portion less than 100 yards away comparatively free from the pest. These conditions render it very difficult to make any general statements concerning this insect. There is no question but that it is becoming more abundant in certain vineyards here and there throughout the grape belt and its numbers have increased materially in the past year or two in some vineyards on the hills back from the lake. The insidious nature of this insect's operations renders it advisable that all growers should keep a close watch for the appearance of the pest in any numbers, and in case it becomes abundant they should adopt measures for its prompt suppression rather than allow it to multiply unrestricted and perhaps cause irreparable injury.

Steely flea beetle (Haltica chalybea Ill.). This pest, owing to the continued cold weather of early spring retarding the grape buds just after they had begun to open, had an exceptional opportunity to work and therefore caused more injury than usual.

This is due to the fact that its operations in the bud, destroying all the foliage and fruit which normally would come from that point, are particularly serious to the vineyardists since a very little feeding in this manner causes an enormous loss. This pest, as is well known, feeds upon the foliage in June as small brown grubs. Spraying at this time will destroy the young and largely reduce the numbers of beetles which can winter and attack the buds in early spring.

White flower cricket (Oecanthus niveus DeG.). The slender, whitish adults of this species are rather common during the latter part of the season and the oviposition scars made by the females are frequently met with in twigs and the stouter herbaceous plants. Occasionally this species is so abundant as to cause considerable injury, as was the case in the vicinity of Ripley, N. Y., during the fall of 1905, though the injury was not observed till early the following spring. Mr F. A. Morehouse of Ripley, under date of April 30, 1906, submitted specimens of the work of this insect and stated that some vineyards were very badly affected, many of the canes dying from the wounds inflicted. The investigation showed that the greatest injury was in vineyards where an abundant weedy growth was present. The most effective method of preventing trouble of this character is clean culture, since flower crickets display a marked preference for weedy places.

Garden insects

Twelve spotted asparagus beetle (Crioceris duodecimpunctata Linn.). This species was observed last July breeding rather abundantly on a small plot of asparagus at Westfield, N. Y. in association with the common asparagus beetle C. asparagi Linn. It was not quite as abundant as the latter form though specimens were easily found on the vines and a number captured. This more recent introduction is already widely though locally distributed in New York State.

Dark sided cutworm (Paragrotis messoria Harr.). This rather common caterpillar was responsible for serious injury to primroses and other garden plants at Cold Spring Harbor, L. I. The attack occurred during the latter part of May. This cutworm, when full grown, is something over an inch long, dingy ash-gray in color, darker on the sides, with a dark, dingy dorsal line. Each segment is marked with eight small, black, hair-bearing tubercles arranged in two groups of four. The posterior extremity has a greenish tinge and the under surface and legs are somewhat lighter than the upper.

This cutworm and its allies are usually noticeable in early spring because of their depredations on young plants. Clean culture is one of the best methods of preventing injury and in the event of their occurring in numbers, poison baits, such as fresh clover dipped in paris green water or dry bran mixed with poison may be employed to destroy the pests. One of the most satisfactory methods, if the area is not too large, is digging out the cutworms and destroying them.

Shade tree insects

Fig. 2 Injury produced by a transverse burrow in a sugar maple about 18 inches in diameter (Author's illustration)

Sugar maple borer (Plagionotus speciosus Say). This destructive maple borer continues its operations in the beautiful shade trees ornamenting the village streets in the State. It appears to be particularly destructive in the central western part, and our attention has recently been called to severe injuries which were observed by us some seven years earlier. The maples in the village of Leroy, N. Y., appear to have been exceptionally unfortunate so far as attacks by this species are concerned. A considerable number of trees are infested by the borer and not a few have been severely injured. Earlier observations and work have shown the practicability of freeing infested maples very largely from this pest. Inhabited galleries should be carefully investigated and exposed until the borer is found and destroyed, either with a hooked wire or with a knife. Such wounds should be carefully dressed with a protective material, one of the best of which is a thick, pasty mixture of fresh air-slacked lime and cow dung. A covering of tar or a cheap paint is also very effective in protecting the exposed wood from fungus infection and further insect operations.

An exceptionally interesting observation on the work of this insect was made in connection with a recent trip to Leroy. Seven years before, namely, in September 1899, we photographed a tree in that village which had been badly injured by this insect and figure 2 represents the condition of the trunk at that time. The tree

is about 18 inches in diameter and at the time the photograph was taken was in rather thrifty condition despite the fact that one side was completely girdled by the operations of this borer. It will be seen, by reference to the illustration, that the dead area had already commenced to enlarge and it was, therefore, not surprising on examining the tree in November of this year to find that the area of the exposed wood had greatly increased. The gallery shown in the figure was approximately 4 feet from the ground. At the present time the entire affected side [pl. 2], from the ground to 8 or 10 feet above, is dead, the bark has decayed or fallen away, and a large proportion of the magnificent limbs and branches on that side of the tree has disappeared. This illustrates in a striking manner the destructive nature of this insect's operations. It is very probable that an injury of this character could be helped by bridge grafting, and it is presumable that extremely beneficial results would have been obtained even if this means had not been employed until two or three years after the initial injury, provided the bridge grafts were inserted in rather vigorous tissues. It certainly illustrates the necessity of closely watching our valuable maples and early adopting measures which will assist in their recovering from such injury.

We have shown elsewhere that the early work of this insect is readily detected by a careful examination in the fall, and the labor involved in cutting out and destroying the young grubs is very slight in comparison with the value of the trees. Systematic examinations by one familiar with the early operations of the borer should be most productive of good results and we commend the adoption of such methods to all villages possessing maples badly infested by this destructive insect.

White marked tussock moth (Hemerocampa leucostigma Abb. & Sm.). This leaf feeder, like the elm leaf beetle, is preeminently a city pest. The season of 1905 was marked by extensive injuries by this species in Buffalo, Lockport, Geneva, Rochester, Syracuse, Utica, Albany, Troy and Brooklyn. Some of these municipalities, as a result of popular agitation, adopted more or less effective measures for the control of this pest, and many egg masses were collected and destroyed during the early spring of 1906. Some sections of certain cities were largely freed from the pest as a result, while in other places the caterpillars were exceedingly abundant and destructive during the past season. This was particularly true in portions of New York and Brooklyn, Albany, Troy, Binghamton and Buffalo.

The caterpillars of this pest were so numerous on some streets and in parks of these cities as to be extremely obtrusive, occurring thickly on tree trunks, walks, fences and even the sides of buildings. Many of these places now harbor large numbers of the conspicuous white egg masses which, unless removed, give promise of a repetition of this plague in 1907. A summarized account of this insect has been prepared and will appear in a special bulletin treating of this species and the equally destructive elm leaf beetle.

A very interesting condition was observed in Capitol park July 5. Many of the trees were badly infested by the tussock moth, several being almost entirely defoliated, and that morning the ground was rather thickly strewn with leaves and leaf-bearing twigs. Most of the latter bore from three to five or six leaves, and the cut end had invariably been completely girdled for a distance ranging from one fourth to nearly an inch in length. This peculiar form of injury was first observed by the late Dr Lintner in 1883, who actually saw caterpillars engaged in the girdling operation. Subsequently questions arose as to whether the depredator was correctly identified. It is gratifying to state that the trees in Capitol park, mentioned above, were infested by practically no other insect, the tussock moth caterpillars were in several instances observed upon the falling twigs, and there is therefore every reason to believe that this larva was the author of this somewhat anomalous injury. The girdling was limited, as was also observed by Dr Lintner, to the new growth, and as the past summer has been exceptionally moist, it is barely possible that there is some connection between a rapid succulent growth and this form of injury, since it is only occasionally that the larvae girdle the twigs, as recorded above.

Spiny elm caterpillar (Euvanessa antiopa Linn.). This large, dark, red spotted, black spined larva is present in small numbers from year to year on elm, willow and poplar, in particular. Caterpillars were received from different sections of the State, from the latter part of July to the middle of August, and in most instances they were taken for the gipsy moth, Porthetria dispar Linn., an insect which has not become established in the State so far as known. This spiny caterpillar feeds in clusters and, as a consequence, its operations are much more apparent than if it were less gregarious. It is quite susceptible to arsenical poisons and easily controlled by these means wherever such treatment is advisable.

Elm leaf beetle (Galerucella luteola Müll.). This

destructive enemy of European elms, in particular, has been abnormally abundant in certain sections. It was reported as being quite destructive at Oyster Bay, Ossining, Fort Edward and Ithaca, while personal observations show that it inflicted serious injuries to many elms in Albany and Troy. Most of the damage in the latter places followed the relaxation of repressive measures, due to the erroneous idea that the insect was well under control and therefore capable of inflicting relatively little harm. Trees which received timely applications of arsenical poisons were practically exempt from injury, while others, which in some sections were in the large majority, lost a very high percentage of their foliage, some being nearly stripped. The experience of recent years has demonstrated the practicability of controlling this insect in cities and villages. A summarized detailed account of this insect has been prepared and will be issued in a forthcoming bulletin.

Fall webworm (Hyphantria textor Harr.). This well known species has been less abundant than usual as a rule, though larvae were received from different sections of the State from the latter part of August to the middle of September. The caterpillars, however, were in no instance excessively abundant. This species is easily controlled by removing the conspicuous nests and crushing the caterpillars within them, or by timely applications of an arsenical poison.

False maple scale (Phenacoccus acericola King). This species appears to be establishing a claim as one of the serious pests of the hard maple in New York State, since it has been quite injurious to trees in the vicinity of New York city, in particular, during the past four or five years. It was very abundant last summer at Port Chester, Middletown, and probably in other villages in the southern part of the State. It may be distinguished at once from the better known cottony maple scale by the fact that it occurs mostly on the foliage, the males making minute cottonlike cocoons on the trunk. These latter are frequently so close to each other as to give the infested tree an appearance of having been whitewashed. There are probably three generations of this destructive species in New York State. The young winter upon the trunk, beginning activities with the approach of warm weather, the second brood hatches in June and the third in August. The best method of controlling this species is in all probability by thorough spraying with a whale oil soap solution or a kerosene emulsion when the minute, yellowish young are crawling in abundance upon the leaves. This can be easily determined by a little observation. Whale oil

soap, used at the rate of 1 pound to 6 or 7 gallons of water, or the standard kerosene emulsion, diluted with nine parts of water, should be effective if thoroughly applied. A wash composed of 3 gallons of water, ½ pound of hellebore and one teaspoonful of carbolic acid, applied to the infested portions of the tree with a whitewash brush in early spring, has been found very effectual in Illinois. It would not be surprising if a thorough application of a lime-sulfur wash in early spring would be equally valuable in checking this pest.

Juniper scale (Diaspis carueli Targ. Tozz.). This scale has been brought to notice several times on account of its occurring upon juniper in various localities in New York State. Mr John Dunbar, assistant superintendent of the park, Rochester, N. Y., writing under date of April 16, 1906, transmitted specimens of this scale and stated that it was becoming a menace to the juniper, Juniperus virginiana glauca, and also occurred on Pinus aristata, the latter being a new food plant for this species. Subsequent observations by Mr. Dunbar showed that this insect began breeding in Rochester early in June, and that thorough spraying at this time with a 5% solution of scalecide was very effectual in checking the pest. This scale insect was noticed in 1880 by Professor Comstock, who recorded it at that time as very common in Washington where it occurred on the following species of juniper and arbor-vitae: Juniperus chinensis, J. rigida, J. oxycedrus, J. japonica, J. communis, J. reresii, Biola orientalis and Thuya occidentalis. Messrs Riley and Howard recorded this species in 1895 from Jamaica Plain, Mass., where it occurred on Juniperus sphaerica, brought over from Germany some four or five years before.

Elm bark louse (Gossyparia spuria Mod.). This species has been quite destructive to elms, particularly the Scotch elm, in recent years. It is rather abundant and appears to be generally distributed throughout the city of Troy, N. Y. The females had attained their maximum development early in July and the woolly matter excreted from the lateral pores made the insects rather conspicuous. This bark louse while preferring European elms is also somewhat abundant on American elms, though hardly so injurious to the latter.

Forest insects

White pine weevil (Pissodes strobi Peck). The blighting work of this weevil on pine is well known, though full

details regarding its life history are still wanting. These insects were rather abundant on hard pine at Nassau, N. Y. April 19, 1906, showing that the beetles appear very early in the spring. Some were feeding, a few pairing, and it is probable that breeding begins early in the season and is continuous to a greater or less extent until late in the fall, though there may be somewhat larger numbers appearing in early spring and possibly another brood in midsummer.

Hickory tussock moth (Halisidota caryae Harr.). The caterpillar of this moth is a very general feeder and specimens were received from the latter part of July to early in September, from localities in various parts of the State where the pest was devouring the foliage of a considerable variety of trees and shrubs. The depredations were in no instance exceptionally severe, and ordinarily repressive measures are not necessary. This leaf feeder is best controlled, when advisable, by timely applications of arsenical poisons.

Black walnut worm (Datana integerrima Gr. & Rob.). Specimens of this caterpillar were received during the last of July and throughout August, from different sections of the State. It is a more or less common species upon black walnut and butternut, occasionally becoming so abundant as to defoliate entire trees or groups of trees. It is possible to destroy many of the insects by cutting off infested branches while the caterpillars are still young and crushing them, or if the trees be of sufficient value, it is amenable to arsenical sprays. Unfortunately these applications are not, as a rule, practical in the case of large trees.

Witch-hazel cone gall (Hormaphis hamamelidis Fitch). The peculiar gall of this plant louse is ordinarily somewhat rare in the vicinity of Albany. The latter part of July and August it was seen that many of the witch-hazel clumps were badly infested with the galls of this species. They were so abundant on some shoots as to seriously injure and almost destroy the foliage. It was not at all difficult to find five to seven galls upon a single leaf and in some instances 20 to 25 could be counted.

Miscellaneous

Violet gall midge (Contarinia violicola Coq.). This insect is undoubtedly a very serious pest of the extensive violet-growing industry in and about Rhinebeck. There must be close to $500,000 invested in this business and the gross annual income

therefrom is very probably an equal amount. A number of greenhouses were visited in October 1906, and several of them showed serious injury as a result of the work of this pest. The crop, according to estimates of growers, is reduced in many houses from one third to one half, involving a considerable loss in the aggregate, and should this infestation become more general, the results may be very serious to the industry as a whole.

An examination showed that the insect was distinctly local in its operations, since one half of a house 150 feet long might be seriously injured, while the other half was almost exempt from attack. Even in smaller houses there were distinct areas which suffered more severely than others, sometimes these being limited to only a square yard or two. The larvae at the time of our investigation had mostly disappeared, though in the Rockefeller house they were rather abundant. This is probably to be explained by the fact that the proprietors have allowed the temperature of their houses to remain rather high in the last few weeks, hoping to enable the plants in a measure to outgrow the injury earlier inflicted. The growers are almost unanimous in stating that when the temperature of a house can be kept down to 40 at night, not rising over 60 in the daytime, there is very little or no injury from this pest, and examination of other houses where this low temperature had been maintained, bore out their statements. The flies, according to the growers, very rarely leave the plants and can be discovered only by flushing them with the hand. An examination showed, even in houses where there were flies on the plants and numerous larvae, that none were to be found on the windows, even in the sheds at the ends of the houses nor in cobwebs spun here and there about the structure. The insect displays a marked preference for recently opened leaves, apparently depositing its eggs in those which have just expanded fully and, according to the growers, leaves perfectly straight one day may be badly curled the next. They note that leaves can be curled in a few hours and are of the opinion that only a day or so lapses between the deposit of the egg and the curling of the leaves, an operation which protects the larva from most insecticides. Furthermore, several of them state that fumigation with hydrocyanic acid gas apparently has no influence whatsoever in destroying the larvae, though there is little doubt but that the flies are killed. There is a marked periodicity in the abundance of the larvae. Last summer they were first noticed in numbers early in July and then they became abundant again in August, and experience this year has shown that they may continue working in

numbers even as late as the latter part of October. A number of infested leaves, portions of plants, were received October 10, through Mr Haines, from Rhinebeck. They were placed on soil the 12th and at that time no pupae were manifest. The first adults appeared on the 22d, others emerged subsequently to the 26th, when about four were bred out. Another individual was obtained November 3 and lived to the 5th at least. Owing to the fact that the plants could not be well cared for, it is probable that the period of the appearance of the flies was somewhat abridged by the unnatural conditions. The data above shows that not over 10 days are necessary from the time the larvae forsakes the plant till the appearance of the perfect fly and it may possibly be a little less. No pupae were observed on the leaves and there is no doubt but that the insect normally undergoes its final transformations in the soil.

Remedies. The parent fly appears to be closely limited to the plants about which it breeds and apparently very local in habit. This leads us to suggest that it would be advisable to take every precaution to avoid the introduction of the pest with newly set plants, since a little effort along this line would result in comparative immunity during most of the season.

Another important factor in checking this insect appears to be keeping the temperature as low as possible in the early fall. The injuries were much more marked, for example, in certain houses where there was an attempt made to hasten the growth of the plants by keeping them warmer than usual, than in other houses where there was no effort made to force the plants.

The experience of violet growers apparently indicates that fumigation with hydrocyanic acid gas is of comparatively little service in checking this pest. This is probably to be explained by the fact that they have been unable to give this treatment at a time when a majority of the flies were abroad and before a considerable proportion of the eggs had been deposited. It is presumably true that this powerful insecticide is of comparatively little value in killing the larvae, though it should be most effective in destroying the flies. Evidence at hand indicates a marked periodicity in the appearance of this insect and it is probable that a little observation would result in securing data which would enable a grower to fumigate at a period when most beneficial results could be obtained.

Periodical cicada (Tibicen septendecim Linn.). This insect, on account of its large size and its appearance in hosts at long intervals in different localities, is of great popular interest.

Six broods are known to occur in New York State, the one appearing the present season being designated by Dr Marlatt as brood 8. It is the one known as number 6 of Messrs Walsh and Riley, and was confused by Dr Fitch in 1855 with a 13 year brood, which occurs to the south. This species has been recorded from two counties in Massachusetts, it is listed from Long Island and occurs in several places in northern New Jersey and in central Pennsylvania. No detailed records, so far as we have been able to find, have been made of the occurrence of this brood in New York State, and this opportunity is taken to place on record certain facts concerning its distribution, which have been ascertained during the past summer.

This brood appears to be limited very largely to a section of Suffolk county west of Riverhead and occurring, so far as we know, in a very few localities in the eastern part of Queens county. The list of localities compiled from various correspondents is as follows: Wading River, Port Jefferson, Saint James, Farmingville, Coram, on the road from Port Jefferson to Patchogue, Manorville, Eastport, East Moriches, Center Moriches, Commack, Brentwood, Cold Spring Harbor, Laurelton, Huntington, Oyster Bay, East Norwich and Syosset. There is also a record of its presence in very limited numbers on Staten Island.

There is a bare possibility that this brood also exists in the Hudson river valley, though we are inclined to believe that the record given below is based upon a mistaken identity in the species or else that they may refer to stragglers from brood 12, due to appear next in 1911. Mr H. D. Lewis of Annandale, N. Y. who resides in one of the strongholds of this latter brood, states that this summer he observed several pupal cases, which he is quite confident are those of the periodical cicada, though we would not be surprised if he had mistaken therefor those of the harvest fly, Tibicen tibicen Linn., an insect which appears later in the season and at the time when the pupal cases were observed by Mr Lewis.

This species is such a unique form among insects that considerable interest has been aroused in regard to the possibility of its eventually being exterminated with the advance of civilization. The somewhat detailed records as to the abundance of this species in the various localities mentioned above, may prove of some service in determining this question in later years. The *Brooklyn Daily Times* of June 29 stated that periodical cicadas were present in large numbers at Wading River in the woodlands to the north of the Long Island Railroad experimental farm. The same paper,

under the same date, stated that a party of Wading River people, who drove from that place through Coram to Patchogue, reported that great numbers of this insect were crushed in the wheel ruts. The underbrush and low trees were literally covered with cicadas to such an extent that "it was like grasshopper days out in the prairies; the buzzing was deafening, one actually could not walk along the ground without stepping on them." The *Port Jefferson Echo* recorded the appearance of cicadas in the vicinity of that village. These insects were reported by the same paper as being very abundant at Saint James, and Mr George T. Lyman informed me that they were present at Farmingville in the middle of the island. Mr G. W. Raynor of Manorville, in the center of the island, stated that these insects were abundant in that vicinity. The *New York Tribune* of June 5 stated that cicadas were very abundant about Eastport, and that millions of them were filling the woods north of the village with their song. "The pests are said to be more numerous than at any time since 1864, and in some places they darken the air, hiding the sun. Persons driving along the woodland roads have their horses and carriages covered with clouds of the insects. In some localities they are so thick that men have had to stop work." The *Brooklyn Times* of June 6 stated that large numbers of the 17 year locust were seen in the woods north of East Moriches. The insect was also reported in large numbers from Center Moriches by Mr H. D. Smith. The *Brooklyn Times* of June 21 reports having received specimens of this brood from F. E. Nichols of Brentwood. There is a considerable area in the vicinity of Oyster Bay infested by this brood. The *Enterprise* of June 16 of East Moriches stated that these insects were drumming incessantly in East Pine Hollow woods and added that 34 years ago they appeared in the woods on the farm of Mr D. V. Horton and 17 years ago there were less of them than formerly. Through the enthusiastic cooperation of Mr F. E. Lutz, connected with the Station for Experimental Evolution at Cold Spring Harbor, we are enabled to present some detailed notes respecting the occurrence of this insect in that vicinity. There is a colony near Cold Spring Harbor at Laurelton, which does not extend west quite to Brookville. Another colony has its center near East Moriches, stragglers from this joining with the Laurelton infestation. About a mile south of Commack Mr Lutz found a pupal skin, and a few feet away, the battered remains of an adult. Careful searching failed to reveal others and none were heard.

A half mile farther south he found another cicada, and shortly thereafter got into the scrub oak region where the insects were very common. He did not consider them abundant, though collecting was easy and males could be heard in one direction or another nearly all the time. This colony extends to the improved part of the village of Brentwood. The colony at Cold Spring Harbor occurs on the Alton and Miami stony loam. It appears to have very definite boundaries, which do not coincide with anything in plants, soil or physiography so far as could be determined. Respecting the occurrence of this brood on Staten Island, Mr William T. Davis states that in April he received a pupa found under a stone by a friend. Later in the season, namely on June 10, he heard a periodical cicada call in a tree at Richmond valley; it did not sing long and consequently he was unable to capture it. Seventeen years ago a pupa skin of this brood was recorded from Staten Island.

This brood, as far as we can ascertain, does not occur on Long Island east of Eastport. There were no signs of its presence at Westhampton, and Mr F. A. Sirrine of Riverhead and J. W. Hand of Easthampton both reported no evidences of this insect in either locality. Furthermore, the cicada could hardly have been abundant on the eastern end of the island or some notice of its presence would have appeared in local papers.

It may be interesting, in this connection, to give some recent notes on brood 12, the largest occurring in New York State. It was exceedingly abundant at Annandale in 1896, and in examining an orchard October 9, 1906, several apple limbs were observed which showed plainly the scars made by this insect a decade ago. Many of them were nearly healed over, just an irregular crevice being the only external indication of the injury, while in a few instances the wound had been so severe that healing was not prompt, and as a result there is at the present time a considerable area of decayed wood with the oviposition scars in the center. The tissues growing around these wounded dead areas have enlarged the diameter of the branch considerably in one direction, and in not a few cases the limbs break off at these points of greatest injury. Mr H. D. Lewis, proprietor of the orchard states that the cicadas are so abundant in that section as to kill five year old trees and as a consequence he does not dare to set out young trees for some years previous to the time when a brood is due. He found during the previous appearance that rolling and harrowing the ground when the insects were emerging, resulted in destroying thousands.

He observed a decade ago a marked difference between localities cultivated as described above and other places where no attempt had been made to check the insects. So many were killed that he proposes to adopt this measure on the next appearance of this brood, in the hope of largely reducing the injury to his fruit trees. He is of the opinion that the adults are rather local, remaining as a rule near the place of emergence and rarely wandering away to a greater distance than ½ mile.

Preventive measures. There is no very practical method of preventing injury by this insect, aside from refraining from setting trees a few years before a large brood is due in a locality. This caution is timely in respect to brood 12, due to appear in portions of Albany, Columbia, Dutchess, Greene, Orange, Putnam, Richmond, Rensselaer, Rockland, Saratoga, Ulster, Washington and Westchester counties and on Long Island in 1911. We would not advise the setting of young trees in localities badly infested by this brood, after the spring of 1907, and in certain situations where the insect is exceptionally abundant, it will be wise to refrain from setting out any more fruit trees till after the appearance of the brood.

Something may be accomplished, as detailed above, by timely cultivation and rolling, though it is obvious that these measures can be advised only where there is liability of considerable injury to fruit trees, or where conditions are such that comparatively little additional expense is involved, owing to the fact that there is need of cultivating the ground about the time the insects appear.

More valuable young trees and shrubbery can be protected from injuries by inclosing them with netting, preferably the ordinary mosquito netting, during the time the adults are abroad. This measure is obviously limited in its application to smaller trees and shrubs, and, as a rule, will be adopted only to protect the more valuable ornamentals.

VOLUNTARY ENTOMOLOGICAL SERVICE OF NEW YORK STATE

Owing to a variety of causes the number of voluntary observers communicating with the office has been exceptionally small. This is due in part to relatively few important insect depredations, to a loss of interest on the part of some, and to the fact that other matters in the office prevented giving this branch of the work more attention than was absolutely necessary. It will be observed, how-

ever, that we have reports from typical localities in the Hudson river valley as well as the central and western portions of the State and that these accounts deal with the more destructive insect pests. There is decided advantage in having such correspondents in various parts of the State, even though they may not make exhaustive reports, since they are usually available should any emergency arise, and this is of considerable importance when the army worm or some other equally destructive insect is abundant.

Cattaraugus county [C. E. Eldredge, Leon] — The somewhat rare larva of the carpet fly (Scenopinus fenestralis Linn.) was observed in some numbers under carpets.—*May 2.* The silver fish (Thermobia furnorum Prov.) was found in woolen cloth which had been eaten by it or some other insect.—*July 11*

[F. A. Fitch, Randolph]— Cabbage butterflies (Pontia rapae Linn.) have appeared in small numbers. Tent caterpillars (Malacosoma americana Fabr.) are scarce.—*May 21* Horn flies (Haematobia serrata Rob.-Desv.) have become quite troublesome and cabbage worms are now abundant and injurious.—*Aug. 8.* The black walnut worm (Datana integerrima Gr. & Rob.) was very abundant in this section and has defoliated a number of trees. The fall webworm (Hyphantria textor Harr.) is also somewhat injurious.—*Aug. 24*

Dutchess county [Henry D. Lewis, Annandale] — Oyster scale (Lepidosaphes ulmi Linn.) and scurfy scale (Chionaspis furfura Fitch) continue abundant and rather destructive, particularly on young trees. The San José scale (Aspidiotus perniciosus Comst.) is well established and injurious in the vicinity of Germantown.—*May 14.* The bud moth (Tmetocera ocellana Schiff.) is moderately numerous and green apple aphids appeared the past week. Cutworms are quite numerous and the small cucumber flea beetle (Epitrix cucumeris Harr.) is abundant. Rose beetles (Macrodactylus subspinosus Fabr.) and cutworms are very prevalent.—*May 26.* Potato beetles (Doryphora decimlineata Say) have become quite numerous the past week and the same is true of the striped squash beetle (Diabrotica vittata Fabr.) and the cucumber flea beetle (Epitrix cucumeris Harr.). Scurfy and oyster scale continue abundant.—*June 9.* Aphids have been quite numerous in this immediate sec-

tion, though not so abundant as last year. Currant worms (Pteronus ribesii Scop.) appeared later than usual and in considerable numbers. Potato beetles are more abundant than for several years, possibly due to neglect in poisoning the vines, owing to the relative scarcity of the pest during the last two years. The work of the elm leaf beetle (Galerucella luteola Müll.) is apparent though not very marked.— *July 3*

Genesee county [J. F. Rose, South Byron]— Asparagus beetles (Crioceris asparagi Linn.) appeared May 15, potato beetles (Doryphora decim-lineata Say) the 18th. No tent caterpillars (Malacosoma americana Fabr.) have been observed. Aphids are abundant on roses.— *May 2.* Cabbage maggots (Phorbia brassicae Bouché) are at work as usual; we have found that a couple of moth balls placed next to each plant when set, is an excellent protective. Asparagus beetles are very abundant and striped cucumber beetles (Diabrotica vittata Fabr.) are numerous.— *May 11.* Asparagus beetles are more abundant than usual and a cabbage butterfly (Pontia rapae Linn.) was observed May 23.—*May 28.* Two nests of fall webworms (Hyphantria textor Harr.) were observed July 9. Potato beetles (Doryphora decim-lineata Say) have been rarer than in many years. Only one squash bug (Anasa tristis DeG.) has been observed. Cabbage worms are present in smaller numbers.— *July 17*

Herkimer county [George S. Graves, Newport] — Tent caterpillars (Malacosoma americana Fabr.) were first observed May 17 and a few nests were seen the following day.— *May 28.* Currant worms (Pteronus ribesii Scop.) were half grown June 3. No potato beetles (Doryphora decim-lineata Say) have been observed. Horn flies (Haematobia serrata Rob.-Desv.) are quite abundant on cattle.— *June 5.* These latter insects are reported by farmers as being generally abundant and very annoying to cattle. Cabbage worms (Pontia rapae Linn.) were rather numerous in early cabbage.— *July 31.* Fall webworms (Hyphantria textor Harr.) were observed on a plum. The black walnut worm (Datana integerrima Gr. & Rob.) has been very destructive to black walnut, defoliating many trees. Very few potatoes in gardens next to sod ground have been affected by wireworms.— *Aug. 15.* Yellow-necked apple worms (Datana ministra Walk.) are full grown and have caused considerable injury to the foliage. Horn flies continue

abundant and grasshoppers are numerous though they have not caused much injury.— *Aug. 28*

Suffolk county [F. E. Lutz, Cold Spring Harbor] — Cabbage butterflies (Pontia rapae Linn.) were first observed April 14. The brown and black woolly bear (Isia isabella Abb. & Sm.) has been observed crawling every month during the winter.— *Apr. 19.* Adults of the green striped grasshopper (Chortophaga viridifasciata DeG.) were observed May 2. The form infuscata appears to be relatively more abundant than usual. This is more southern than the green variety. Possibly the warm weather had something to do with this though it is doubtful. — *May 9.* The dark-sided cut worm (Paragrotis messoria Harr.) has been quite abundant and destructive, in particular to evening primroses. The periodical cicada (Tibicen septendecim Linn.) has appeared in this section.— *May 30*

Warren county [C. L. Williams, Glens Falls] — Cutworms have been very abundant and tent caterpillars (Malacosoma americana Fabr.) more numerous than for several years past. The larder beetle (Dermestes lardarius Linn.) has been somewhat plentiful about houses.— *June 3*

Westchester county [Frank R. Calkins, Ossining] — The elm leaf beetle (Galerucella luteola Müll.) has been more destructive than in any previous year, owing to the utter lack of repressive measures. "Nearly every tree in town has been completely defoliated and now the second crop of leaves has been attacked and is nearly eaten by the young larvae."— *July 30*

Wyoming county [W. H. Roeper, Wyoming] — The first tent caterpillars (Malacosoma americana Fabr.) were observed May 12, though not in large numbers. The wheat sawfly (Cephus occidentalis Riley & Marl.) has been inflicting considerable injury. The codling moth (Carpocapsa pomonella Linn.) has been rather abundant on apples, and canker worms are causing a great deal of injury.— *June 11*

LIST OF PUBLICATIONS OF THE ENTOMOLOGIST

The following is a list of the principal publications of the Entomologist during the year 1906. Seventy-four are given with the title,[1] place, time of publication and a summary of the contents of

[1] Titles are given as published, and in some instances they have been changed or supplied by the editors of the various papers.

each. Volume and page number are separated by a colon, the first superior figure gives the column and the second the exact place in the column in ninths: e. g. 70:956[36] means volume 70, page 956, column 3, in the sixth ninth, i. e. about two thirds of the way down.

Oyster Scale. Country Gentleman, Oct. 19, 1905, 70:956[36]

Brief economic notice of the oyster scale, Lepidosaphes ulmi Linn.

The Moth Situation. Country Gentleman, Oct. 19, 1905, 70:962[41]–63[29]

Brief summary of conditions in eastern Massachusetts, with special reference to the gipsy moth, Porthetria dispar Linn. and the brown tail moth, Euproctis chrysorrhoea Linn. with a discussion of repressive measures.

Mosquitos and Nature Study. N. Y. S. E. D.

Science Division Folder, p. 1–8.
Issued Oct. 20, 1905.
The importance of these insects and their availability for nature study is pointed out.

20th Report of the State Entomologist 1904. N. Y. State Mus. Bul. 97, Entomology 24, p.357–597, pl. 19

Advance copies issued Oct. 30, 1905.

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Wood Lice. Country Gentleman, Nov. 2, 1905, 70:1004[37]

Brief general notice with discussion of remedial measures.

Jassidae of New York State by Herbert Osborn. Reprint from N. Y. State Mus. Bul. 97, 20th State Entomologist Rep't 1904. p.498–545

Issued Nov. 8, 1905.

List of Hemiptera Taken in the Adirondack Mountains by E. P. Van Duzee. Reprinted from N. Y. State Mus. Bul. 97, 20th State Entomologist Rep't 1904. p.546–56

Issued Nov. 8, 1905.

List of Lepidoptera Taken at Keene Valley, N. Y. by G. F. Comstock. Reprinted from N. Y. State Mus. Bul. 97, 20th State Entomologist Rep't 1904. p.557–61

Issued Nov. 8, 1905.

Warble and Bot Flies. New York Farmer, Dec. 7, 1905, p.4

Brief accounts of the horse bot fly, Gastrophilus equi Clark, the heel fly, Hypoderma lineata Vill. and the sheep bot fly or maggot, Oestrus ovis Linn.

A Winter Campaign Against Scale Insects. Garden Magazine, Jan. 1906, 2:270

Brief general notices of West Indian peach scale, Aulacaspis pentagona Targ.; oyster scale, Lepidosaphes ulmi Linn. and scurfy scale, Chionaspis furfura Fitch with discussion of remedies.

Appletree Pests. Garden Magazine, Feb. 1906, 2:36,38

Brief popular economic notices are given of the following species: Round-headed borer, Saperda candida Fabr., bud moth, Tmetocera ocellana Schiff., pistol case-bearer, Coleophora malivorella Riley and cigar case-bearer, C. fletcherella Fern.; tent caterpillar, Malacosoma americana Fabr. and codling moth, Carpocapsa pomonella Linn.

Box Elder Plant Bug. Suburban Life, Feb. 1906, 2:86[24]

Methods of controlling the box elder plant bug, Leptocoris trivittatus Say are discussed briefly.

Scale in Orchard. Country Gentleman, Feb. 1, 1906, 71:114[22]

Remedies for San José scale, Aspidiotus perniciosus Comst.

Bordeaux Mixture for Potatoes. Country Gentleman, Feb. 15, 1906, 71:157[43]

Directions for the preparation and application of poisoned bordeaux mixture.

Remedies for Scale. Country Gentleman, Feb. 15, 1906, 71:162[12]

Brief comments on lime-sulfur washes and the probable value of so called soluble oils for controlling San José scale, Aspidiotus perniciosus Comst.

Scale in Orchard. Country Gentleman, Feb. 22, 1906, 71:184[35]

Directions for spraying orchard trees infested by San José scale, Aspidiotus perniciosus Comst. with lime-sulfur wash.

Bag Worm. Country Gentleman, Feb. 22, 1906, 71:185[12]

Spraying with an arsenical poison or hand picking recommended for the control of the bagworm, Thyridopteryx ephemeraeformis Haw.

Spraying Calendar. Suburban Life, Mar. 1906, 2:144–45

Summarized directions for the control of the more important fruit and garden pests.

Poison Formulas. Suburban Life, Mar. 1906, 2:145–46

Formulas for the standard insecticides and fungicides.

Insects Affecting Park and Woodland Trees. N. Y. State Mus. Mem. 8. 1905. 1:1–332, a333–a459, 48 pl. (20 colored), 63 text fig.

Issued Feb. 23, 1906.

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Salt is Useless. Country Gentleman, Mar. 8, 1906, 71:232[43]

Salt has very little or no value in the lime-sulfur wash.

Diversities Among New York Mosquitos. Reprint from Am. Mosquito Extermination Soc. Year Book 1904–1905 (p.34–64) Mar. 1906, p.1–32, pl.14

Issued Mar. 9.

A summarized discussion of the biologic and morphologic diversities obtaining among native species.

Lime-sulfur Formulae. Country Gentleman, Mar. 15, 1906, 71:256[25]

Formulas for boiled and unboiled lime-sulfur washes.

Bag Worms Not Easily "Bagged." Country Gentleman, Mar. 15, 1906, 71:258[12]

Timely and thorough spraying with an arsenical poison should be very effective in controlling bagworms, Thyridopteryx ephemeraeformis Haw.

Producing Smooth Potatoes. Country Gentleman, Mar. 22, 1906, 71:277[11]

General directions for controlling insect enemies and fungous diseases.

Petroleum for Scale. Country Gentleman, Mar. 22, 1906, 71:281[15]

Comments on the value of oil preparations for the control of San José scale, Aspidiotus perniciosus Comst. with special reference to "soluble oils" and their effects on trees.

Insect Enemies of Ornamental Trees. Suburban Life, May 1906, 2:248–50

Brief descriptive accounts giving control measures for the following species: maple borer, Plagionotus speciosus Say; elm borer, Saperda tridentata Oliv.; leopard moth, Zeuzera pyrina Fabr.; carpenter worm, Prionoxytus robiniae Peck; poplar borer, Saperda calcarata Say; mottled willow borer, Cryptorhynchus lapathi Linn.; locust borer, Cyllene robiniae Forst; white marked tussock moth, Hemerocampa leucostigma Abb. & Sm.; fall webworm, Hyphantria textor Harr.; forest tent caterpillar, Malacosoma disstria Fabr.; gipsy moth, Porthetria dispar Linn.; brown tail moth, Euproctis chrysorrhoea Linn.; bagworm, Thyridopteryx ephemeraeformis Haw.; elm leaf beetle, Galerucella luteola Müll.; elm case bearer, Coleophora limosipennella Dup.; San José scale, Aspidiotus perniciosus Comst.; cottony maple scale, Pulvinaria innumerabilis Rathv.; false maple scale, Phenacoccus acericola King; black-banded scale, Eulecanium nigrofasciatum Perg. and the oyster scale, Lepidosaphes ulmi Linn.

Gipsy and Brown Tail Moths. N. Y. State Fruit Growers Ass'n Proc. 1906, p.71–77

Brief summarized discussion of Porthetria dispar Linn. and Euproctis chrysorrhoea Linn.

Injurious Insects of 1905. N. Y. State Fruit Growers Ass'n Proc. 1906, p.120–24

Brief notice of shade tree situation followed by observations on the codling moth, Carpocapsa pomonella Linn.; apple maggot, Rhagoletis pomonella Walsh; rose beetle, Macrodactylus subspinosus Fabr.; scurfy scale, Chionaspis furfura Fitch; San José scale,

Aspidiotus perniciosus Comst.; grape root worm, Fidia viticida Walsh and the berry moth, Polychrosis viteana Clem.

New York Entomologic Service. Country Gentleman, May 17, 1906, 71:472[48]–73[11]; New York Farmer, May 17, p.5

Summary of reports and a warning notice.

Fighting Garden Pests. Suburban Life, June 1906, 2:293

Control measures for cutworms, black flea beetles, Epitrix cucumeris Harr.; currant worms, Pteronus ribesii Scop.; rose beetles, Macrodactylus subspinosus Fabr.; oyster and scurfy scales, Lepidosaphes ulmi Linn. and Chionaspis furfura Fitch.

Red Ants. Suburban Life, June 1906, 2:301–2

Directions are given for fighting this tiny pest, Monomorium pharaonis Linn.

Grape Root Worm Found to be Very Abundant. Grape Belt, May 29, 1906, p.1

General observations on the work of the grape root worm, Fidia viticida Walsh.

New York Entomologic Service. Country Gentleman, June 7, 1906, 71:545[23]; New York Farmer, June 7, p.4

Summary of reports.

New York Entomologic Service. Country Gentleman, June 14, 1906, 71:569[15]; New York Farmer, June 14, p.4

Summary of reports.

Melon Pests. Country Gentleman, June 21, 1906, 71:592[45]

Covering young plants with netting is advised for striped cucumber beetle, Diabrotica vittata Fabr. or land plaster, ashes etc. may be applied when the dew is on.

Cherry Borers. Country Gentleman, June 21, 1906, 71:593[15]

Cut away diseased bark and kill the borers either with a wire or by injecting carbon bisulfid. Then cover the wounds with paint or fill the cavity with cement.

New York Entomologic Service. Country Gentleman, June 21, 1906, 71:593[27]; New York Farmer, June 21, p.8

Summary of reports.

Ravages of Tussock Caterpillars. Troy Times, June 22, 1906; Argus [Albany], June 23; Lockport Journal, June 23; Syracuse Post-Standard, June 23; Utica Press, June 23; Ogdensburg News, June 24; Cohoes Dispatch, June 25; Middletown Argus, June 25; Hudson Republican, June 28; Albany Press-Knicker-

bocker, June 29; Washington County Post, June 29; Boonville Herald, July 5.

A brief account of the work of the white marked tussock moth, Hemerocampa leucostigma Abb. & Sm. in cities and villages in New York State with directions for suppressing the pest.

An Enemy to Grass and Corn. The So-called Grass Webworm. Country Gentleman, June 28, 1906, 71:612[12]

Brief notice of injury with a summary of remedial and preventive measures for grass webworm, Crambus vulgivagellus Clem. and associated species.

Rose Beetles. Country Gentleman, June 28, 1906, 71:614[47]

Preventive measures for rose beetles, Macrodactylus subspinosus Fabr. are discussed briefly.

New York Entomologic Service. Country Gentleman, June 28, 1906, 71:622[36]; New York Farmer, June 28, p.5

Summary of reports.

Rose Bugs. Country Gentleman, July 5, 1906, 71:635[15]

Suppressive measures for the control of Macrodactylus subspinosus Fabr. are given.

Crude Carbolic Acid for Scale. Country Gentleman, July 5, 1906, 71:636[24]

Comments on the probable value of this material for the control of San José scale, Aspidiotus perniciosus Comst. Adherence to the lime-sulfur wash advised for the present.

Hair Snakes or Cut Worms. Country Gentleman, July 5, 1906, 71:643[25]

Brief accounts of hair snakes, cutworms and onion maggots are given in reply to a vague inquiry.

Gipsy and Brown Tail Moth

Issued July 9, 1906.

A warning placard giving the salient characteristics of these two species, Porthetria dispar Linn., Euproctis chrysorrhoea Linn. and illustrating them in colors.

Protect the Trees. Albany Press-Knickerbocker, July 9, 1906; Troy Budget, July 8; Troy Times, July 9; Troy Press, July 9 and July 16; Troy Standard, July 10

Urges the adoption of remedial measures against the white marked tussock moth, Hemerocampa leucostigma Abb. & Sm. and elm leaf beetle, Galerucella luteola Müll.

The Gipsy and Brown Tail Moths. N. Y. State Mus. Bul. 103, Entomology 25. 1906.

Issued July 14, p. 1–20, pl. 1–10.

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The Moth Situation. Country Gentleman, July 19, 1906, 71:681[11]

Summary account of the work against the gipsy moth, Porthetria dispar Linn. and the brown tail moth, Euproctis chrysorrhoea Linn. in the vicinity of Boston, Mass.

Grape Root Worm. Grape Belt (Dunkirk, N. Y.) July 24, 1906, p.5; Jamestown Journal, July 25

Summary of present conditions. Serious injury is anticipated in some of the vineyards most infested by Fidia viticida Walsh and good culture is urged.

New York Entomologic Service. Country Gentleman, July 26, 1906, 71:694[48]; New York Farmer, July 26, p.4

Summary of reports.

Ants in Lawn. Suburban Life, Aug. 1906, 3:90[32]

Carbon bisulfid treatment recommended.

Currant Aphids. Suburban Life, Aug. 1906, 3:90[34]

Spraying with contact insecticides advised for currant aphids, Myzus cerasi Fabr.

Albany's Trees. Albany Evening Journal, July 26, 1906, p.12

Summarized account of the local injuries by the elm leaf beetle, Galerucella luteola Müll. and the white marked tussock moth, Hemerocampa leucostigma Abb. & Sm. with discussion of control methods. The employment of a forester is advocated.

Save the Trees. Mechanicville Mercury, July 28, 1906

A brief notice calling attention to the work of the elm leaf beetle, Galerucella luteola Müll. and urging concerted action for its suppression.

Cornstalk Borers. Country Gentleman, Aug. 2, 1906, 71:714[35]

Crambids, Crambus sp.; stalk borer, Papaipema nitela Guen. and billbugs, Sphenosphorus sp. are briefly discussed as possible authors of the mischief.

Cucumber Insects. Country Gentleman, Aug. 2, 1906, 71:715[37]

Remedial measures are given for cutworms and the striped cucumber beetle, Diabrotica vittata Fabr.

New York Entomologic Service. Country Gentleman, Aug. 2, 1906, 71:722[43]; New York Farmer, Aug. 2, p.8

Summary of conditions.

As to the Gipsy Moth. Providence (R. I.) Journal, Aug. 4, 1906

Statements respecting the gipsy moth, Porthetria dispar Linn. and observations on the necessity of protecting trees from insect pests.

Protecting the City's Shade Trees. Albany Argus, Aug. 8, 1906

A brief statement emphasizing the value of individual action against the white marked tussock moth, Hemerocampa leucostigma Abb. & Sm. and the elm leaf beetle, Galerucella luteola Müll.

Tulip Tree Scale. Country Gentleman, Aug. 16, 1906, 71:754[45]

Eulecanium tulipiferae Cook is described and repressive measures advised.

Currant Aphis-Asparagus. Country Gentleman, Aug. 23, 1906, 71:775[11]

Remedies for currant aphis, Myzus cerasi Fabr. are briefly discussed.

Squash and Cucumber Pests. Country Gentleman, Aug. 30, 1906, 71:800[44]

Brief economic accounts of the squash borer, Melittia satyriniformis Hübn. and the striped cucumber beetle, Diabrotica vittata Fabr.

Protect the Birds. Cattaraugus Republican, Aug. 31, 1906

A brief plea for the protection of birds as one of the best methods of controlling certain destructive forest insects.

21st Report of the State Entomologist 1905. N. Y. State Mus. Bul. 104, Entomology 26, p.47-186, 48 fig. 10 pl.

Issued Sept. 4, 1906.

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The Shade Tree Problem in New York State. Reprint from N. Y. State Mus. Bul. 104, 21st State Entomologist Rep't 1905. 1906. p.105–9, 2 pl.

A plea for the better protection of shade trees.

Mosquito Control. Reprint from N. Y. State Mus. Bul. 104, 21st State Entomologist Rep't 1905. 1906. p.109-16, 8 pl.

A summary account of mosquitos with a discussion of control methods.

Oyster Scale. Country Gentleman, Sept. 20, 1906, 71:872[27]

Brief economic notice of the oyster scale, Lepidosaphes ulmi Linn.

Black Flea Beetle. Country Gentleman, Sept. 20, 1906, 71:872[35]

Remedial measures are given for the black flea beetle, Epitrix cucumeris Harr.

Horticultural Diseases and Pests. N. Y. State Lib. Bul. 29e. 1906. p.77-79

Issued Sept. 24.

Review and summary of legislation for 1905.

Notes for 1905 from New York. U. S. Dep't Agric. Bur. Ent. Bul. 60, 1906, p.89–90

Brief observations are given on the following species: Webworms, Crambus vulgivagellus Clem.; army worm, Heliophila unipuncta Haw.; codling moth, Carpocapsa pomonella Linn.; apple maggot, Rhagoletis pomonella Walsh; rose beetle, Macrodactylus subspinosus Fabr.; scurfy scale, Chionaspis furfura Fitch; grape root worm, Fidia viticida Walsh; spittle insects, Philaenus lineatus Linn. and P. spumaria Linn.; white marked tussock moth, Hemerocampa leucostigma Abb. & Sm.; fall webworm, Hyphantria textor Harr.; elm leaf beetle, Galerucella luteola Müll.; elm case-bearer, Coleophora limosipennella Dup.; false maple scale, Phenacoccus acericola King; woolly maple leaf aphid, Pemphigus acerifolii Riley and the green-headed horsefly, Tabanus lineola Fabr.

Experiments with Insecticides on the San José Scale. U. S. Dep't Agric. Bur. Ent. Bul. 60, 1906, p.137–38

Experiments with lime-sulfur washes and the so called K-L mixtures are briefly summarized as being decidedly in favor of the lime-sulfur washes for work against Aspidiotus perniciosus Comst.

San José Scale. Country Gentleman, Oct. 4, 1906, 71:921[11]

Thorough spraying with a lime-sulfur wash, preceded by pruning, is advised for San José scale, Aspidiotus perniciosus Comst.

Pear Blister Mite. Country Gentleman, October 11, 1906, 71:944[36]

Remedial measures are given for the pear blister mite, Eriophyes pyri Nal.

CONTRIBUTIONS TO COLLECTION OCT. 16, 1905-OCT. 13, 1906

The following list of acquisitions is limited mostly to species of importance, either on account of their relative scarcity or because of their injurious nature, since it was deemed inadvisable to include in this list a number of very common forms received yearly and accompanied by no data of special value.

DONATION

Hymenoptera

Bembex pallidipicta Sm., cocoons, Sept. 11, **J. B. Woodworth,** Fort Edward, N. Y.

Cratotechus sp., adults, Aug. 20, **Miss S. J. Russell,** Blue Point, L. I., N. Y.

Aulax glechomae Htg., galls on Glechoma hederacea Linn., June 20, **S. H. Burnham,** Albany, N. Y.

Neuroterus batatus Fitch, oak potato gall, gall on white oak, Sept. 15, **S. H. Burnham,** S. E. Easton Hills, N. Y.

Andricus lana Fitch, oak wool gall, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

A. petiolicola Bass., oak leaf stalk gall, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

A. seminator Harr., wool sower, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

A. singularis Bass., oak leaf apple, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

Amphibolips confluentus Harr., large oak apple, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

A. ilicifoliae Bass., black scrub oak gall, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

Harpiphorus tarsatus Say, larvae on Cornus, Sept. 20, **L. S. Silliman,** Old Chatham, N. Y.

Pontania pomum Walsh, willow apple gall, gall on heart-leaved willow, Sept. 15, **S. H. Burnham,** S. E. Easton Hills, N. Y.

Kaliosysphinga ulmi Sund., elm leaf miner, larva on Camperdown or weeping elm, June 10, **Barton C. Meays,** Baldwinsville, N. Y.

Coleoptera

Tomicus balsameus Lec., balsam bark borer, adult, June 22, **E. P. VanDuzee,** Buffalo, N. Y.

Calandra granaria Linn., grain weevil, adults, Oct. 19, **J. J. Barden,** Stanley, N. Y.

Systena hudsonias Frost, black headed flea beetle, adult on grape, July 30, **Will E. Skinner,** Portland, N. Y.

Galerucella luteola Müll., elm leaf beetle, larvae on elm, July 9, **A. R. Wing,** Fort Edward, N. Y.

Saperda candida Fabr., round headed appletree borer, adults and larvae on apple, June 19, **T. F. Niles,** Chatham, N. Y.

Phymatodes amoenus Say, grapevine Phymatodes on grapevine, Mar. 19, **P. L. Huested,** Blauvelt, N. Y.

Euphoria inda Linn., bumble flower beetle, adult, Aug. 29, **A. M. Loomis,** Dunkirk, N. Y. Same, Sept. 7, **L. M. Olmsted,** Jamestown, N. Y.

Macrodactylus subspinosus Fabr., rose beetle, adults on grape, June 16, **D. K. Falvay,** Westfield, N. Y.

Hadrobregmus errans Melsh., adult on pine, Sept. 10, **Chauncey Posson,** Albany, N. Y. (Boring in pine beam)

Dytiscus harrisii Kirby, margined water beetle, adult, Nov. 29, **George L. Fredrick,** Albany, N. Y.

Diptera

Rhagoletis pomonella Walsh, apple maggot, larvae in apple, Sept. 5, **C. W. Stuart,** Newark, N. Y.

Scenopinus fenestralis Linn., carpet fly, larva, May 2, **C. E. Eldredge,** Leon, N. Y.

Anopheles maculipennis Meig., malarial mosquito, male and female, July 14, **C. S. Ludlow,** Ft Logan, Ark.

A. punctipennis Say, Apr. 17, **C. R. Pettis,** Saranac Junction, N. Y. (Through Forest, Fish and Game Com'n)

Culicada cantator Coq., brown salt marsh mosquito, living larvae, May 18, **John R. Lott,** Brooklyn, N. Y.

C. sollicitans Walk., salt marsh mosquito, Aug. 13, **H. C. Weeks,** Bayside, L. I., N. Y.

Culiseta absobrinus Felt, larvae, Aug. 2, **H. C. Weeks,** Paul Smith's, N. Y.

Culex pipiens Linn., house mosquito, larvae, pupae and adults, Dec 13, **J. H. Ashworth,** Edinburgh, Scotland.

C. restuans Theo., white spotted mosquito, adult, Sept. 12, **J. G. Needham,** Lake Michigan

C. hassardii Gbhm., adults and larvae, July 2, **M. Grabham,** Jamaica, W. I.

C. microannulatus Theo., adults (male and female), July 14, **C. S. Ludlow,** Washington, D. C.

C. gelidus Theo., adults (female), July 14, **C. S. Ludlow,** Washington, D. C.

Stegomyia mediovittata Coq., adults and larvae, July 2, **M. Grabham,** Jamaica, W. I.

S. arnesii Ludlow, adults (male and female), July 14, **C. S. Ludlow,** Washington, D. C.

Mansonia uniformis Theo., adult, Nov. 14, **Andrew Balfour,** Khartoum, Africa.

Wyeomyia smithii Coq., pitcher plant mosquito, larvae in pitcher plant, May 7, **L. H. Joutel,** Lakehurst, N. J.

Finlaya porcilia Theo., female, July 14, **C. S. Ludlow,** Washington, D. C.

Mochlostyrax jamaicensis Gbhm., adults and larvae, July 2, **M. Grabham,** Jamaica, W. I.

Myzomyia thorntonii Ludlow, adult (female, cotype), July 14, **C. S. Ludlow,** Washington, D. C.

Howardina aureostriata Gbhm., adults and larvae, July 2, **M. Grabham,** Jamaica, W. I.

Eucorethra underwoodi Undw., giant mosquito, larvae, Aug. 2, **H. C. Weeks,** Paul Smith's, N. Y.

Corethrella appendiculata Gbhm., adults and larvae, July 2, **M. Grabham,** Jamaica, W. I.

Contarinia violicola Coq., violet gall midge, larvae on violet, Oct. 10, **L. Haines,** Rhinebeck, N. Y.

Tipula sp., crane fly, Apr. 17, **C. R. Pettis,** Saranac Junction, N. Y. (Through Forest, Fish and Game Com'n)

Lepidoptera

Polygonia interrogationis Fabr., hop merchant, larvae on elm, July 29, **Miss Louise E. Swartz,** Dahlia, N. Y.

Satyrodes canthus Linn., adult, July 21, **F. S. Dibb,** Ushers, N. Y.

Sphecodina abbotii Swainson, larvae on woodbine, July 13, **W. J. Guernsey,** Albany, N. Y.

Pholus pandorus Hübn., adult, July 19, **W. S. Hamlin,** Glenville, N. Y.

P. achemon Drury, larva, July 19, **A. G. Appleton,** Albany, N. Y.

Ampelophaga myron Cramer, grapevine sphinx, larva on grape, Aug. 21, **Lee Richardson,** Rome, N. Y.

Phlegethontius quinquemaculata Haw., tomato worm, adult, Sept. 13, **N. Albert Sehoenbuch,** Stapleton, New York, N. Y.

Sphinx drupiferarum Abb. & Sm., adult, June 10, **George S. Graves,** Newport, N. Y.

Smerinthus jamaicensis Drury, adult, July 18, **Editor, Avon Herald,** Avon, N. Y.

Citheronia regalis Fabr., hickory horned devil, caterpillar, Sept. 13, **Alex More,** Rockville Center, L. I., N. Y.

Estigmene acraea Drury, larvae, Sept. 5, **Charles Hosie,** Ferndale, N. Y.

Apatela americana Harris, larva on maple, Aug. 20, **S. J. Russell,** Blue Point, L. I., N. Y.

A. interrupta Guen., larvae, Aug. 28, **M. W. VanDenburg,** Mt Vernon, N. Y.

Arsilonche albovenosa Goeze, adult, June 10, **George S. Graves,** Newport, N. Y.

Hadena arctica Boisd., cutworm, adult, July 28, **M. Gabriel,** Mileses, N. Y.

Peridroma margaritosa Haw., variegated cutworm, larvae, July 25, **J. M. Erwin,** New Salem, N. Y. One light army worm, Heliophila unipuncta Haw.

Paragrotis messoria Harris, dark sided cutworm, larvae, May 30, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y. Same, June 1, **S. C. Martin,** Schenectady, N. Y.

Mamestra adjuncta Boisd., adult, May 21, **F. A. Fitch,** Randolph, N. Y.

Papaipema nitela Guen., larvae, June 26, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

Catocala relicta Walk., moth, Sept. 20, **C. N. Stevens,** South Gilboa, N. Y.

C. grotiana Bailey, Aug. 13, **Alice E. Bartlett,** Delhi, N. Y.

Hemerocampa leucostigma Abb. & Sm., white marked tussock moth, caterpillar, July 26, **C. F. Van Horne,** Glen, N. Y. Same larva on maple, Aug. 2, **E. B. Frey,** Palatine Bridge, N. Y. Same, female, Aug. 18, **C. R. Pettis,** Saranac Junction, N. Y.

Paleacrita vernata Pack., spring cankerworm, larva on apple, June 4, **L. Emmett Holt,** New York city.

Earias insulana Boisd., eggs, larvae, adult on cotton, Dec. 23, **F. V. Theobald,** Egypt, Africa.

?Oiketicus abbotii Grote, southern bagworm on cyprus, Jan. 8, **Hermann Von Schrenk,** New Orleans, La.

Thyridopteryx ephemeraeformis Haw., bagworm on cedar, Jan 8, **Hermann Von Schrenk,** New Orleans, La. Same, probably on mangrove near Palm Beach, Fla., Jan. 22, **Hermann Von Schrenk,** St Louis, Mo. Same, Apr. 3, **L. V. Case,** Tarrytown, N. Y. Same, cocoon and pupa, Sept. 7, **Miss Helen Weston,** West New Brighton, Staten Island, N. Y.

Sibine stimulea Clem., saddle back caterpillar, larva, Aug. 16, **Mekeel Bros.,** Yorktown Heights, N. Y. (Through Agricultural Department)

Euclea delphinii Boisd., slug caterpillar, larvae, Sept. 4, **F. N. Beebe,** Walton, N. Y.

Zeuzera pyrina Linn., leopard moth, larvae on maple, Sept. 7, **Miss Helen Weston,** West New Brighton, Staten Island, N. Y.

Sesia pictipes Gr. & Rob., larvae on plum, June 15, **F. P. Wilson,** Schenectady, N. Y.

?Thiodia, species on oak, May 24, **L. H. Joutel,** New York city.

Eulia politana Haw., pine tube builder on white pine needles, Jan. 10, **Robert L. Stevens,** Westbury, L. I., N. Y.

Anarsia lineatella Zell., peach twig moth on cherry, Oct. 23, **C. Kennedy,** Coxsackie, N. Y.

Coptodisca splendoriferella Clem., resplendent shield bearer, work, Sept. 30, **H. W. Covert,** Waterford, N. Y.

Crambus sp., grass webworms, larvae on corn, June 14, **Lansing A. Dick,** Germantown, N. Y.

Corrodentia

Psocus venosus Burm., Psocus or book louse, nymphs on maple, Aug. 1, **F. P. Hochstrasser,** Berne, N. Y. Same, adult on maple, Aug. 8, **J. N. Wright,** Grand Gorge, N. Y. Same, Aug. 13, **J. M. Graeff,** Westport, N. Y.

Neuroptera

Chrysopa sp., eggs on apple, Sept. 18, **J. F. Rose,** South Byron, N. Y.

Corydalis cornuta Linn., devil fly or horned corydalis, adult, July 14, **G. G. Blakeslee,** Rensselaer, N. Y.

Chauliodes pectinicornis Linn., comb horned fish fly, adult, July 28, **E. F. Connally,** Troy, N. Y.

Hemiptera

Tibicen septendecim Linn., periodical cicada, adult, May 28, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y. Same, adult, June 12, **H. D. Smith,** Center Moriches, L. I., N. Y.

Belostoma americanum Leidy., Apr. 19, **Thomas Barry,** Albany, N. Y.

Phylloxera caryae-globuli Walsh, June 4, **F. E. Lutz,** Cold Spring Harbor, L. I., N. Y.

Schizoneura americana Riley, young and adults on elm, June 22, **Julius G. Linsley,** Oswego, N. Y.

Callipterus ulmifolii Mon., elm leaf aphis, work on elm, July 24, **Rev. G. H. Purdy,** Warrensburg, N. Y.

Chermaphis abietis Linn., spruce gall aphid, galls, June 20, **James M. Andrews,** Schenectady, N. Y.

Aleyrodes betheli Ckll. MS., on Berberis, Sept. 27, **T. D. A. Cockerell,** Ouray, Col.

Chermes pinicorticis Fitch, pine bark aphid, hatching young on pine, May 29, **C. R. Pettis,** Saranac Junction, N. Y.

Parlatoria proteus Curt., on Japanese orange, Jan. 4, **J. R. Anderson,** Victoria, B. C.

Chrysomphalus rossi Mask., Sept. 27, **T. D. A. Cockerell,** Lucban, P. I.

Pseudaonidia duplex Ckll., on orange from Japan, Dec. 18, **J. R. Anderson,** Victoria, B. C.

Aspidiotus rapax Comst., greedy scale on California lemon, Jan. 4, **J. R. Anderson,** Victoria, B. C.

A. perniciosus Comst., San José scale on Keiffer pear, Jan. 28, **A. G. Wheeler jr,** New York city. Same, on pear, Mar. 10, **F. E. Goewey,** East Greenbush, N. Y. Same, young on apple, Apr. 28, **William H. Hart,** Arlington, N. Y. Same, young, May 15, **H. A. Van Fredenberg,** Port Jervis, N. Y. Same, female on plum and apple, May 21, **E. C. and F. M. Brooks,** Athens, N. Y. Same, females on apple, May 26, **J. A. Otterson,** Maynard, Mass. Same, on osage orange, June 28, **W. K. Post,** Bayport, L. I., N. Y. Same, adults and young on pear, July 16, **Alexander Sitcer,** Valatie, N. Y. Same, adults and young on plum, July 25, **Samuel T. Maynard,** Northboro, Mass. Same, young and adults on apple,

July 31, **Henry Gorman,** Huntington, N. Y. Same, young and adults on currant, Aug. 2, **Mrs H. A. Sterling,** Scotia, N. Y. Same, adults and young on pear, Aug. 4, **A. V. Boak,** Middletown, N. Y. Same, on currant, Aug. 13, **M. S. Wheeler,** Berlin, Mass. Same, young and adults on crab apple, Oct. 3, **I. Osgood Carleton,** Yonkers, N. Y.

A. hederae Vallot, white ivy scale, adults and young on ivy, Oct. 5, **Henry G. Dorr,** Boston, Mass. Same, Apr. 21, **B. D. Van Buren,** Lockport, N. Y.

A. ancylus Putn., adult on apple, Jan. 15, **Reuben Moore,** Chatham, N. Y.

Hemichionaspis minor? Mask., on orange from Japan, Dec. 18, **J. R. Anderson,** Victoria, B. C.

Aulacaspis rosae Bouché, rose scale on rose, Apr. 3, **Fred Bostwick,** Poughkeepsie, N. Y. Same, on blackberry, Aug. 13, **M. S. Wheeler,** Berlin, Mass.

Diaspis carueli Targ., juniper scale, adult on Pinus aristata and Juniperinus virginiana, Apr. 16, **John Dunbar,** Rochester, N. Y.

Chionaspis pinifoliae Fitch, scurfy pine scale on Scotch pine needles, Jan. 10, **Robert L. Stevens,** Westbury, L. I., N. Y.

Eulecanium tulipiferae Cook, tulip tree scale, adult on tulip, July 27, **Herbert Mead,** Lake Waccabuc, N. Y. Same, young and adults on tulip, Sept. 17, **Miss F. E. Fellows,** Norwich, Ct.

E. nigrofasciatum Perg., black-banded scale on maple, Sept. 13, **T. F. Niles,** Chatham, N. Y.

Coccus diversipes Ckll., on fern, Sept. 27, **T. D. A. Cockerell,** Lucena, P. I.

Pseudophilippia quaintancii Ckll., woolly pine scale, adults on pitch pine, Nov. 20, **H. A. Van Fredenberg,** Port Jervis, N. Y.

Pulvinaria innumerabilis Rathv., cottony maple scale, adults and young on Virginia creeper, July 3, **Charles M. Pierce,** Adams, N. Y.

Phenacoccus acericola King, false maple scale, adults and young on maple, July 24, *New York Farmer* (**H. A. Van Fredenberg**) Port Jervis, N. Y. Same, larvae on maple, Sept. 18, **Edward F. Studwell,** Port Chester, N. Y.

Orthoptera

Oecanthus niveus DeG., white flower cricket, eggs on grape, Apr. 30, **F. A. Morehouse,** Ripley, N. Y.

Gryllotalpa borealis Burm., mole cricket, adult, Oct. 8, **William Williams,** Milton, N. Y.

Diapheromera femorata Say, walking stick, adult, Oct. 12, **George L. Richards,** Altamont, N. Y.

Periplaneta australasiae Fabr., Australian cockroach, nymph, June 7, **Tilden Palmatier,** Athens, N. Y.

Thysanura

Thermobia furnorum Prov., fish moth, adult in woolen cloth, July 11, **C. E. Eldredge,** Leon, N. Y.

Miscellaneous

A considerable number of insects of different orders were determined for Mr Charles Alexander of Gloversville, N. Y., and some of the more desirable ones retained for the State collection. They are as follows:

Carabus serratus *Say*
Bembidium ustulatum *Linn.*
Agabus seriatus *Say*
Necrophorus americanus *Oliv.*
Choleva terminans *Lec.*
Philonthus umbrinus *Grav.*
Lathrobium punctulatum *Lec.*
Tachinus memnonius *Grav.*
Tachinus luridus *Er.*
Dermestes frischii *Kug.*
Alaus myops *Fab.*
Anthaxia aeneogaster *Lap.*
Calloides nobilis *Say*
Tylonotus bimaculatus *Hald.*
Stephanocleonus plumbeus *Lec.*
Atymna castanea *Fitch*
Neuronia pardalis *Walk.*

EXCHANGE

From **E. S. Tucker,** Lawrence, Kan., in exchange for publications:

Ophion idoneum Vier., Bracon xanthostigma Cr., Melanobracon ulmicola Vier., Agathis vulgaris Cr., Calyptus rotundiceps Cr., Aphaereta dolosa Vier., Nemigonia limosa Wheel., Lasius niger Linn., var. americanus Emery, Pelecinus polyturator Dru., Pompilus relatinus Fox, Isodontia azteca Sauss., Tachytes spatulatus Fox, T. obscurus Cr., Sphecius speciosus Dru., Euspongus bipunctatus Say, Mellinus rufinodus Cr., Mimesa punctata Fox, Stigmus inordinatus Fox, Epeolus occidentalis Cr., Clisodon terminalis Cr.

Staphylinus maculosus Grav., Romaleum atomarium Dru., Myochrous denticollis Say, Tomicus grandicollis Eich.

Catocala junetina Walk., var. aspasia Strk.

Ceratopogon squamipes Coq., Scatopse notata Loew., Allognosta fuscitarsis Say, Tabanus sulcifrons Macq., Xylomyia pallipes Loew., Deromyia ternata Loew., Erax stamineus Will., Psilopodinus sipho Say, Dolichopus bifractus Loew., D. cuprinus Wied., D. longipennis Loew., Empis clausa Coq., Rhamphomyia nasoni Coq., Eupeodes volucris O. S., Allograpta obliqua Say, Oncomyia loraria Loew., Myiophasia aenea Wied., Siphopla-

gia anomala Town., Blepharipeza leucophrys Wied., Paradidyma singularis Town., Myiocera cremides Wlk., Sarcophaga helicis Town., Morellia micans Macq., Limnophora narona Walk., Phorbia cinerella Fall., Coenosia lata Walk., Schoenomyza dorsalis Loew., Scatophaga furcata Say, Borborus equinus Fall., Lonchaea polita Say, Pachycerina dolorosa Will., Pseudotephritis cribrum Loew., Straussia longipennis Wied., Urellia actinobola Loew., Calobata antennipes Say, Nemopoda minuta Wied., Elachiptera costata Loew., Oscinis coxendix Fitch, Drosophila graminum Fall., Phormia regina Meig.

Corimelaena nitiduloides Wolff., Melanaethus uhleri Sign., Oebalus pugnax Fabr., Menecles insertus Say, Catorhintha mendica Stal., Anasa armigera Say, Hadrodema pulverulenta Uhl., Tygus distantii St F., Nabis rufusculus Reut., Sinea raptoria Stal., Agallia 4-punctata Prov., Deltocephalus melsheimeri Fabr., Dicraneura abnormis Walsh., Oncometopia costalis Fabr., Orthotylus flavosparsus Dhlb.

Hemerobius stigmaterus Fitch, Chrysopa nigricornis Burm., C. florabunda Fitch, Hydropsyche kansensis Bks., H. phalerata Hag., H. scalaris Hag.

Stylopyga orientalis Linn.

Sympetrum corruptum Hag.

Chrysididae from **A. Mocsary,** Budapest, Hungary:

Cleptes pallipes Lep., Notozus panzeri Fabr., Elampus auratus Linn., E. auratus var. virescens Mocs., E. bogdanovii Rad., E. aeneus Fabr., Holopyga amoenula Dhlb., H. amoenula var. punctatissima Dhlb., H. ahenea Dhlb., H. curvata Forst., H. gloriosa Fabr., H. chrysonota Forst., H. rosea Rossi, Hedychrum gerstaeckeri Cheve., H. nobile Scop., H. rutilans Dhlb., Stilbum cyanurum Forst. var. amethystinum F., Chrysogona pumila Rl., Spintharis vagans Rad., Chrysis austriaca Fabr., C. cuprea Rossi, C. dichroa Dhlb., C. elegans Lep., C. versicolor Spin., C. saussurei Cheve., C. succincta Linn., C. leachii Shuck., C. cyanea Linn., C. nitidula Fabr., C. viridula

Linn., C. ignita Linn., C. splendidula Rossi, C. rutilans Oliv., C. scutellaris F., C. scutellaris var. ariadne Mocs., C. inequalis Dhlb., C. comparata Lep., C. chloris Mocs., C. lyncea F. var. papuana Mocs., C. sexdentata Christ., C. (Euchroeus) purpuratus F., Tarnopes grandior Tall. (carnea Rossi).

Culicidae received in exchange for publications Jan. 30, 1906, from **Ebb. Crum,** Lawrence, Kan.:

Anopheles maculipennis Meig., Psorophora ciliata? Abr. young larva, Ecculex sylvestris Theo., Culex restuans Theo., C. territans Walk., C. ?tarsalis Coq., C. salinarius? Coq., Grabhamia discolor Coq., G. jamaicensis Theo., Culicada canadensis Theo.

Diptera from **Dr C. Kertesz,** Hungary, Jan. 11, 1906:

Tabanus tergestinus Egg., T. sudeticus Zell., T. spodopterus Meig., T. rusticus Fabr., T. quattuornotatus Meig., T. graecus F.?, T. fulvus Meig., T. tropicus Linn., T. bromius Linn., T. bovinus Linn., T. autumnalis Linn., T. auripilus Meig., var. aterrimus, T. africus Meig., Culex dorsalis Meig., C. vexans Meig., C. cantans Meig., C. ornatus Meig., C. pulcritarsis Rond., C. modestus Ficl., C. pipiens L., C. annulipes Meig., Aedes cinereus Meig., Anopheles maculipennis Meig.

Tachinidae from **Mario Bezzi,** Italy, Nov. 27, 1905:

Meigenia bisignata Meig., Dexodes machaeropsis R. D., Hemimasicera ferruginea Meig., Parexorista polychaeta, Blepharida vulgari Fall. var. stridens Bd., Perichaeta unicolor Fall., Mintho praeceps Scop., Melanota volvulus Fabr., Anthracomyia melanoptera Fall., Macquartia chalconota Meig., M. dispar Fall., Thelaira leucozona Panz., Zophomyia temula Scop., Myobia inanis Fall., Ocyptera bicolor Oliv., O. brassicaria Fabr., Bonellia picta Meig., Ernestia consobrina Meig., Echinomyia grossa Linn., Eudoromyia magnicornis Zett., Plagia ruralis Fall., Phasia crassipennis Fabr., Brachycoma devia Fall., Rhinophora atramentaria Meig., Metopia leucocephala Ross.,

Miltogramma oestracea Fall., Dexiosoma caninum Fabr.

Insects purchased from **Prof. F. H. Snow,** Lawrence, Kan.:

Psychoda alternata Say, Ceratopogon argentatus Lw., C. pergandei Coq., C. specularis Coq., Anopheles pseudopunctipennis Theo., Neoglaphyroptera bivittata Say, Cecidomyia radiatae Snow, Chrysops aestuans V. d. W., C. celer O. S., C. flavidus Wied., C. fugax O. S., C. indus O. S., C. striatus O. S., C. univittatus Macq., Tabanus costalis Wied., T. lasiophthalmus Macq., T. melanocerus Wied., T. molestus Say, T. nivosus O. S., T. pumilus Macq., T. stygius Say, T. trimaculatus P. B., T. venustus O. S., Eumetopia rufipes Macq., Stenopa vulnerata Lw., Plagiotoma obliqua Say, Carphotricha culta Wied., Neaspilota alba Lw., Tephritis clathrata Lw., Urellia solaris Lw.

Anelastes drurii Kir., Ischiodontus soleatus Say, Glyphonyx recticollis Say, Corymbites hieroglyphicus Say, Pyrophorus physoderus Germ., Euthysanius lautus Lec., Plastocerus schaumii Lec., Hylotrupes bajulus Linn., Sphaenothecus suturalis Lec., Coenopoeeus palmeri Lec., Leptostylus aculiferus Say, Mecas inornata Say, Macrorhoptus striatus Lec., Conotrachelus similis Boh., C. leucophaeatus Fah., Pityophthorus nitidulus Mann., Dendroctonus similis Lec., Hylastes nigrinus Mann., Lasioderma testaceum Duft., Hemiptychus gravis Lec., Sinoxylon simplex Horn., S. sericans Lec., S. sextuberculatum Lec., Amphicerus fortis Lec., A. punctipennis Lec., Polycaon obliquus Lec., Lyctus californicus Cr.

EXCHANGE LIST

A number of desirable forms have been added to the State collection by exchange with others interested in this branch of science. A preliminary exchange list was published in the report of this office for 1903. There have been extensive additions to our collection since then, particularly in some groups, and it is therefore deemed desirable to prepare a revised list, which follows:

Hymenoptera

Bombus fervidus *Fabr.*
B. ternarius *Say*
B. terricola *Kir.*
B. vagans *Sm.*
Xylocopa virginica *Dru.*
Ceratina dupla *Say*
Megachile latimanus *Say*
Nomada maculata *Cress.*
Andrena vicina *Sm.*
A. sayi *Rob.*
A. flavocylpeata *Sm.*
Agapostemon nigricornis *Fabr.*
Halictus parallelus *Say*
H. pilosus *Sm.*
Colletes inequalis *Say*
Vespa arenaria *Fabr.*
V. diabolica *Sauss.*
V. maculata *Linn.*
Polistes pallipes *St Farg.*
Odynerus capra *Sauss.*
Eumenes fraternus *Say*
Anacrabro ocellatus *Pack.*
Crabro singularis *Sm.*
C. trifasciatus *Say*
Pemphredon concolor *Say*
Philanthus solivagus *Say*
Hoplisus phaleratus *Say*
Monedula ventralis *Say*
Bembex fasciata *Fabr.*
Chalybion caeruleum *Linn.*
Pelopoeus cementarius *Dru.*
Ammophila communis *Cress.*
?Aporus biguttatus *Fabr.*
A. marginatus *Say*
Camponotus pennsylvanicus *Cress.*
Pelecinus polyturator *Dru.*
Calyptus crassigaster *Prov.*
Calyptus magdali *Cress.*
Macrocentrus solidaginis *Cress.*
Apanteles congregatus *Say*
Lampronota americana *Cress.*
Pimpla conquisitor *Say*
P. pedalis *Cress.*
P. inquisitor *Say*
Theronia fulvescens *Cress.*
Ephialtes irritator *Fabr.*
Thalessa lunator *Fabr.*
T. atrata *Fabr.*
Arotes decorus *Say*
Paniscus geminatus *Say*
Heteropelma flavicornis *Brullé*
Anomalon exile *Prov.*
Ichneumon centrator *Say*
I. duplicatus *Say*
I. laetus *Brullé*
I. scelestus *Cress.*
I. unifasciatorius *Say*
Foenus incertus *Cress.*
Andricus punctatus *Bass.*
Tremex columba *Linn.*
Strongylogaster rufocinctus *Nort.*
Macrophya flavicoxae *Nort.*
Allantus basilaris *Say*
Dolerus albifrons *Nort.*
D. apricus *Nort.*
D. aprilis *Nort.*
D. arvensis *Nort.*
D. similis *Nort.*
Harpiphorus varianus *Nort.*
Lygaeonematus erichsonii *Hartig.*
Hylotoma mcleayi *Leach*
Trichiocampus viminalis *Fall.*
Cimbex americana *Leach*

Coleoptera

Cratoparis lunatus *Fabr.*
Hylesinus aculeatus *Say*
H. opaculus *Lec.*
Polygraphus rufipennis *Kir.*
Chramesus hicoriae *Lec.*
Scolytus rugulosus *Ratz.*
Tomicus calligraphus *Germ.*
T. grandicollis *Eich.*
Tomicus pini *Say*
T. balsameus *Lec.*
T. integer *Eich.*
Dryocoetes eichhoffei *Hopk.*
Xyleborus celsus *Eich.*
X. dispar *Fabr.*
Pityophthorus minutissimus *Zimm.*
Stenocelis brevis *Boh.*

Cossonus platalea *Say*
Calandra granaria *Linn.*
C. oryzae *Linn.*
Sphenophorus sculptilis *Uhler.*
Balaninus uniformis *Lec.*
B. nasicus *Say*
Centrinus scutellum-album *Say*
Madarellus undulatus *Say*
Pseudobaris nigrina *Say*
Rhinoncus pyrrhopus *Lec.*
Coeliodes aspicalis *Dietz*
Mononychus vulpeculus *Fabr.*
Cryptorhynchus lapathi *Linn.*
Tyloderma foveolatum *Say*
Conotrachelus nenuphar *Hbst.*
Gymnetron teter *Fab.*
Elleschus ephippiatus *Say*
Anthonomus signatus *Say*
Tachypterus quadrigibbus *Say*
Magdalis perforata *Horn*
M. barbita *Say*
M. armicollis *Say*
M. alutacea *Lec.*
Tanysphyrus lemnae *Fabr.*
Dorytomus parvicollis *Casey*
Lixus concavus *Say*
Hylobius pales *Hbst.*
Pissodes strobi *Peck*
Phytonomus punctatus *Fabr.*
P. nigrirostris *Fabr.*
Apion nigrum *Hbst.*
Sitones hispidulus *Germ.*
Cyphomimus dorsalis *Horn*
Aphrastus taeniatus *Gyll.*
Pandeletejus hilaris *Hbst.*
Otiorhynchus ovatus *Linn.*
Rhynchites bicolor *Fab.*
Pomphopoea sayi *Lec.*
Epicauta puncticollis *Mann.*
E. vittata *Fabr.*
E. cinerea *Forst.*
E. pennsylvanica *DeG.*
Macrobasis unicolor *Kir.*
Henous confertus *Say*
Meloe angusticollis *Say*
Dendroides canadensis *Lat.*
Notoxus bifasciatus *Lec.*
N. anchora *Hentz.*
Corphyra lugubris *Say*
Mordellistena comata *Lec.*
Mordellistena aspersa *Melsh.*
M. convicta *Lec.*
Mordella melaena *Germ.*
M. scutellaris *Fabr.*
M. octopunctata *Fabr.*
M. marginata *Melsh.*
Tomoxia lineella *Lec.*
Anaspis flavipennis *Hald.*
A. rufa *Say*
Nacerdes melanura *Linn.*
Pytho americanus *Kir.*
Phloeotrya simulator *Newm.*
Melandrya striata *Say*
Penthe obliquata *Fabr.*
Arthromacra aenea *Say*
Cistela sericea *Say*
Boletotherus bifurcus *Fabr.*
Platydema ruficorne *Sturm.*
P. subcostatum *Lap.*
Hoplocephala bicornis *Oliv.*
Diaperis hydni *Fabr.*
Paratenetus punctatus *Sol.*
Dioedus punctatus *Lec.*
Tribolium ferrugineum *Fabr.*
Tenebrio obscurus *Fabr.*
T. molitor *Linn.*
T. castaneus *Knoch.*
T. tenebrioides *Beauv.*
Xylopinus saperdioides *Oliv.*
Scotobates calcaratus *Fabr.*
Upis ceramboides *Linn.*
Merinus laevis *Oliv.*
Iphthimus opacus *Lec.*
Nyctobates pennsylvanica *DeG.*
Eleodes tricostata *Say*
Bruchus pisi *Linn.*
B. obsoletus *Say*
Chelymorpha argus *Licht.*
Coptocycla aurichalcea *Fabr.*
Odontota quadrata *Fabr.*
Microrhopala vittata *Fabr.*
Dibolia borealis *Chev.*
Phyllotreta sinuata *Steph.*
Systena hudsonias *Forst.*
S. frontalis *Fabr.*
S. taeniata *Say*
Crepidodera rufipes *Linn.*
C. helxines *Linn.*
Epitrix cucumeris *Harr.*
Haltica bimarginata *Say*

Disonycha pennsylvanica *Ill.*
D. collaris *Fabr.*
D. alternata *Ill.*
Galerucella cavicollis *Lec.*
G. decora *Say*
G. luteola *Muls.*
Trirhabda canadensis *Kir.*
Diabrotica duodecim-punctata *Oliv.*
D. vittata *Fabr.*
Cerotoma caminea *Fabr.*
Phyllodecta vulgatissima *Linn.*
Melasoma tremulae *Fabr.*
M. scripta *Fabr.*
Chrysomela similis *Rog.*
C. elegans *Oliv.*
C. bigsbyana *Kir.*
C. spiraeae *Say*
Doryphora clivicollis *Kir.*
D. decim-lineata *Say*
Prasocuris vittata *Oliv.*
Nodonota tristis *Oliv.*
Colaspis brunnea *Fabr.*
Graphops pubescens *Melsh.*
Metachroma marginalis *Cress.*
Typophorus canellus *Fabr.*
Chrysochus auratus *Fabr.*
Glyptoscelis hirtus *Oliv.*
G. pubescens *Melsh.*
Fidia viticida *Walsh*
Xanthonia decim-notata *Say*
Monachus saponatus *Fabr.*
Cryptocephalus quadri-maculatus *Say*
Chlamys plicata *Fabr.*
Crioceris asparagi *Linn.*
C. duodecim-punctata *Linn.*
Lema trilineata *Oliv.*
Syneta ferruginea *Germ.*
Orsodachna atra *Ahr.*
Donacia cincticornis *Newm.*
D. piscatrix *Lac.*
D. rufa *Say*
Tetraopes tetraophthalmus *Forst.*
Saperda tridentata *Oliv.*
S. puncticollis *Say*
Hyperplatys maculatus *Hald.*
Liopus alpha *Say*
Monohammus maculosus *Hald.*
M. scutellatus *Say*
M. confusor *Kir.*
Leptura haematites *Newm.*
L. lineola *Say*
L. exigua *Newm.*
L. cordifera *Oliv.*
L. canadensis *Oliv.*
L. vagans *Oliv.*
L. proxima *Say*
L. vittata *Germ.*
L. pubera *Say*
Strangalia acuminata *Oliv.*
Typocerus velutinus *Oliv.*
Rhagium lineatum *Oliv.*
Desmocerus palliatus *Forst.*
Euderces picipes *Fabr.*
Clytanthus ruricola *Oliv.*
Neoclytus erythrocephalus *Fabr.*
Xylotrechus colonus *Fabr.*
Plagionotus speciosus *Say.*
Cyllene robiniae *Forst.*
Molorchus bimaculatus *Say*
Elaphidion villosum *Fabr.*
Callidium antennatum *Newm.*
Prionus laticollis *Dru.*
Orthosoma brunneum *Forst.*
Parandra brunnea *Fabr.*
Trichius affinis *Gory*
Osmoderma scabra *Beauv.*
O. eremicola *Knoch.*
Euphoria inda *Linn.*
Allorhina nitida *Linn.*
Chalepus trachypygus *Burm.*
Pelidnota punctata *Linn.*
Strigoderma arboricola *Fabr.*
Anomala lucicola *Fabr.*
Lachnosterna fusca *Froh.*
L. tristis *Fabr.*
Macrodactylus subspinosus *Fabr.*
Serica trociformis *Burm.*
Dichelonycha elongata *Fabr.*
D. albicollis *Burm.*
Hoplia trifasciata *Say*
H. modesta *Hald.*
Geotrupes semiopacus *Jek.*
G. egeriei *Germ.*
Bolboceras farctus *Fabr.*
Aphodius fossor *Linn.*
A. fimetarius *Linn.*
A. granarius *Linn.*
A. inquinatus *Hbst.*

Onthophagus pennsylvanicus *Hald.*
O. hecate *Panz.*
Phanaeus carnifex *Linn.*
Copris anaglypticus *Say*
Canthon laevis *Dru.*
Passalus cornutus *Fabr.*
Ceruchus piceus *Web.*
Dorcus parallelus *Say*
Ennearthron thoracicornis *Zicgl.*
Cis horridula *Casey*
Dorcatoma setulosum *Lec.*
Sitodrepa panicea *Linn.*
Ernobius mollis *Linn.*
Ptinus quadrimaculatus *Melsh.*
Necrobia violaceus *Linn.*
Clerus analis *Lec.*
C. quadriguttatus *Oliv.*
C. nigriventris *Lec.*
Trichodes nuttalli *Kir.*
Telephorus carolinus *Fabr.*
T. scitulus *Say*
T. rotundicollis *Say*
T. bilineatus *Say*
Podabrus rugulosus *Lec.*
Chauliognathus pennsylvanicus *DeG.*
C. marginatus *Fabr.*
Photuris pennsylvanicus *DeG.*
Photinus scintillans *Say*
Pyropyga nigricans *Say*
Ellychnia corrusca *Linn.*
Lucidota atra *Fabr.*
Plateros sollicitus *Lec.*
Calopteron reticulatum *Fabr.*
Brachys ovata *Web.*
B. aerosa *Melsh.*
Agrilus ruficollis *Fabr.*
A. otiosus *Say*
A. anxius *Gory*
Acmaeodera pulchella *Hbst.*
Buprestis maculiventris *Say*
Chrysobothris femorata *Fabr.*
C. dentipes *Germ.*
C. floricola *Gory*
C. scabripennis *Lap. & Gory*
C. pusilla *Lap. & Gory*
Melanophila fulvoguttata *Harr.*
Dicerca divaricata *Say*
D. lurida *Fabr.*
Chalcophora virginiensis *Dru.*
Asaphes decoloratus *Say*
Oxygonus obesus *Say*
Corymbites cylindriformis *Hbst.*
C. inflatus *Say*
Limonius confusus *Lec.*
Melanotus communis *Gyll.*
Dolopius lateralis *Esch.*
Elater nigricollis *Hbst.*
E. obliquus *Say*
Cryptohypnus planatus *Lec.*
Cardiophorus convexus *Say*
Alaus oculatus *Linn.*
Tharops ruficornis *Say*
Cyphon variabilis *Thunb.*
Scirtes tibialis *Guer.*
Tenebrioides mauritanica *Linn.*
T. corticalis *Melsh.*
Ips quadriguttatus *Fabr.*
Phenolia grossa *Fabr.*
Nitidula bipustulata *Linn.*
Conotelus obscurus *Er.*
Colastus truncatus *Rand.*
Carpophilus dimidiatus *Fabr.*
C. brachypterus *Say*
Saprinus assimilis *Payk.*
Hister abbreviatus *Fabr.*
H. americanus *Payk.*
H. lecontei *Mars.*
H. parallelus *Say*
Anthrenus scrophulariae *Linn.*
A. verbasci *Linn.*
A. castaneae *Melsh.*
Attagenus piceus *Oliv.*
Dermestes lardarius *Linn.*
Byturus unicolor *Say*
Triphyllus humeralis *Kir.*
Mycetophagus punctatus *Say*
M. flexuosus *Say*
Lyctus unipunctatus *Hbst.*
L. parallelopipedus *Melsh.*
L. opaculus *Lec.*
Uliota dubius *Fabr.*
Laemophloeus testaceus *Fabr.*
Cucujus clavipes *Fabr.*
Catogenus rufus *Fabr.*
Silvanus surinamensis *Linn.*
Tritoma humeralis *Fabr.*
T. thoracica *Say*
Megalodacne heros *Say*

Languria mozardi *Lat.*
Endomychus biguttatus *Say*
Lycoperdina ferruginea *Lec.*
Epilachna borealis *Fabr.*
Hyperaspis binotata *Say*
Brachyacantha ursina *Fabr.*
Smilia misella *Lec.*
Chilocorus bivulnerus *Muls.*
Psyllobora viginti-maculata *Say*
Anatis ocellata *Linn.*
Adalia bipunctata *Linn.*
Coccinella trifasciata *Linn.*
C. novem-notata *Hbst.*
C. transversalis *Muls.*
C. sanguinea *Linn.*
Hippodamia glacialis *Fabr.*
H. convergens *Guer.*
H. tredecim-punctata *Linn.*
H. parenthesis *Say*
Megilla maculata *DeG.*
Oxytelus rugosus *Grav.*
Oxyporus femoralis *Grav.*
O. lateralis *Grav.*
Erchomus ventriculus *Say*
Tachinus fimbriatus *Grav.*
Paederus littorarius *Grav.*
Stenus flavicornis *Er.*
Philonthus aeneus *Rossi*
Staphylinus maculosus *Grav.*
S. cinnamopterus *Grav.*
Creophilus villosus *Grav.*
Listotrophus cingulatus *Grav.*
Silpha surinamensis *Fabr.*
S. lapponica *Hbst.*
S. inaequalis *Fabr.*
S. noveboracensis *Forst.*
S. americana *Linn.*
Necrophorus marginatus *Fabr.*
N. pustulatus *Hersch.*
N. tomentosus *Web.*
Sphaeridium scarabaeoides *Linn.*
Cercyon praetextatum *Say*
Hydrobius fuscipes *Linn.*
Hydrocharis obtusatus *Say*
Hydrophilus triangularis *Say*
H. mixtus *Lec.*
H. glaber *Hbst.*
Dineutes discolor *Aubé*
D. assimilis *Aubé*
Gyrinus ventralis *Kirby*
G. picipes *Aubé*
Acilius semisulcatus *Aubé*
Dytiscus fasciventris *Say*
D. harrisii *Kirby*
Colymbetes sculptilis *Harr.*
Agabus gagates *Aubé*
A. punctulatus *Aubé*
Ilybius bigguttalus *Germ.*
Hydroporus tristis *Payk.*
Deronectes griseostriatus *DeG.*
Laccophilus maculosus *Germ.*
Cnemidotus duodecim-punctatus *Say*
Haliplus ruficollis *DeG.*
Anisodactylus rusticus *Say*
A. discoideus *Dej.*
A. baltimorensis *Say*
Bradycellus rupestris *Say*
Harpalus erraticus *Say*
H. viridiaeneus *Beauv.*
H. caliginosus *Fabr.*
H pennsylvanicus *DeG.*
H. fallax *Lec.*
H. pleuriticus *Kirby*
H. herbivagus *Say*
Agonoderus pallipes *Fabr.*
Chlaenius sericeus *Forst.*
C. tricolor *Dej.*
C. pennsylvanicus *Say*
C. tomentosus *Say*
Metabletus americanus *Dej.*
Apristus cordicollis *Lec.*
Lebia grandis *Hentz.*
L. atriventris *Say*
L. viridis *Say*
Galerita janus *Fabr.*
Platynus angustatus *Dej.*
P. extensicollis *Say*
P. melanarius *Dej.*
Calathus gregarius *Say*
Dicaelus elongatus *Bon.*
Amara impuncticollis *Say*
Pterostichus honestus *Say*
P. stygicus *Say*
P. lucublandus *Say*
P. caudicalis *Say*
P. luctuosus *Dej.*
P. corvinus *Dej.*
P. mutus *Say*

Pterostichus patruelis *Dej.*
P. femoralis *Kirby*
Tachys nanus *Gyll.*
T. flavicauda *Say*
Bembidium variegatum *Say*
B. quadri-maculata *Linn.*
Scarites subterraneus *Fabr.*
Pasimachus elongatus *Lec.*
Nebria sahlbergi *Fisch.*
Elaphrus ruscarius *Say*
Calosoma calidum *Fabr.*
Carabus vinctus *Web.*
Omophron americanum *Dej.*
Cicindela lecontei *Hald.*
C. sexguttata *Fabr.*
C. generosa *Dej.*
C. vulgaris *Say*
C. repanda *Dej.*
C. purpurea *Oliv.*
C. duodecim-guttata *Dej.*
C. punctulata *Fabr.*

Diptera

Drosophila ampelophila *Loew.*
Chlorops prolifica *O. S.*
Ephydra atrovirens *Loew.*
Piophila casei *Linn.*
Tephritis platyptera *Loew.*
Rhagoletis cingulata *Loew.*
Seoptera colon *Loew.*
Melierial similis *Loew.*
Lauxania flaviceps *Loew.*
Straussia longipennis *Wied.*
Sepedon fuscipennis *Loew.*
Tetanocera plebeja *Loew.*
Phorbia fusciceps *Zett.*
Pollenia rudis *Fabr.*
Calliphora erythrocephala *Meig.*
Sarcophaga sarraceniae *Riley*
Echinomyia algens *Wied.*
Archytas analis *Fabr.*
Peleteria tessellata *Fabr.*
Gonia capitata *DeG.*
Tachina mella *Walk.*
T. robusta *Town.*
Ocyptera carolinae *Desv.*
Belvosia unifasciata *Desv.*
Physocephala furcillata *Will.*
Spilomyia fusca *Loew.*
Xylota ejuncida *Say*
Syritta pipiens *Linn.*
Mallota posticata *Fabr.*
Helophilus similis *Macq.*
Eristalis dimidiatus *Wied.*
E. saxorum *Wied.*
E. tenax *Linn.*
E. transversus *Wied.*
Sericomyia chrysotoxoides *Macq.*
Volucella evecta *Walk.*
Rhingia nasica *Say*
Sphaerophoria cylindrica *Say*
Mesogramma marginata *Say*
Syrphus americanus *Wied.*
S. lesueurii *Macq.*
S. ribesii *Linn.*
S. torvus *O. S.*
Platychirus quadratus *Say*
Hydrophorus pirata *Loew*
Liancalus genualis *Loew*
Promachus bastardii *Macq.*
Deromyia umbrina *Loew*
Bombylius major *Linn.*
Anthrax sinuosa *Wied.*
A. alternata *Say*
A. concessor *Coq.*
A. fuliginosa *Loew.*
A. nebulo *Coq.*
Chrysopila thoracica *Fabr.*
Leptis mystacea *Macq.*
Tabanus coffeatus *Macq.*
T. lineola *Fabr.*
T. microcephalus *O. S.*
T. reinwardtii *Wied.*
Chrysops excitans *Walk.*
C. niger *Macq.*
C. vittatus *Wied.*
Pangonia tranquilla *O. S.*
Stratiomyia badia *Walk.*
S. discalis *Loew.*
Sargus decorus *Say*
Bibio albipennis *Say*
Rhabdophaga salicis *Schrank.*
Dasyneura pseudacaciae *Fitch*
Anopheles punctipennis *Say*
A. maculipennis *Meig.*
Psorophora ciliata *Fabr.*
Culicelsa aurifer *Coq.*

Culicada canadensis *Theo.*
C. subcantans *Felt*
C. fitchii *Felt & Young*
C. abfitchii *Felt*
C. cantator *Coq.*
C. sollicitans *Walk.*
C. impiger *Walk.*
C. lazarensis *Felt & Young*
C. cinereoborealis *Felt & Young*
C. abserratus *Felt & Young*
Ecculex sylvestris *Theo.*
Culicella dyari *Coq.*
Culex pipiens *Linn.*
C. restuans *Theo.*
C. territans *Walk.*
Aedes fuscus *O. S.*
Wyeomyia smithii *Coq.*
Corethra cinctipes *Coq.*
C. lintneri *Coq.*
C. karnerensis *Felt*
Tipula abdominalis *Say*

Lepidoptera

Papilio turnus *Linn.*
Pontia rapae *Linn.*
Eurymus philodice *Gdt.*
Argynnis aphrodite *Edw.*
A. atlantis *Edw.*
Brenthis myrina *Cram.*
B. bellona *Fabr.*
Phyciodes tharos *Drury*
Polygonia interrogationis *Fabr.*
P. faunus *Edw.*
Eugonia j-album *Bd. Lec.*
Euvanessa antiopa *Linn.*
Vanessa atalanta *Linn.*
Basilarchia arthemis *Drury*
B. archippus *Cram.*
Anosia plexippus *Linn.*
Feniseca tarquinius *Fabr.*
Heodes hypophleas *Boisd.*
Deilephila lineata *Fabr.*
Samia cecropia *Linn.*
Callosamia promethea *Drury*
Ctenucha virginica *Charp.*
Haploa confusa *Lyman*
Estigmene acraea *Drury*
Isia isabella *Sm. & Abb.*
Diacrisia virginica *Fabr.*
Apantesis virgo *Linn.*
A. parthenice *Kirby*
Halisidota tessellaris *Sm. & Abb.*
H. caryae *Harr.*
Alypia octomaculata *Fabr.*
Arsilonche albovenosa *Goeze*
Hadena passer *Guen.*
H. dubitans *Walk.*
H. devastatrix *Brace*
H. arctica *Boisd.*
Hyppa xylinoides *Guen.*
Pyrophila pyramidoides *Guen.*
Adelphagrotis prasina *Fab.*
Peridroma margaritosa *Haw.*
Noctua smithii *Snellen*
N. normaniana *Grote*
N. bicarnea *Guen.*
N. c-nigrum *Linn.*
N. plecta *Linn.*
N. clandestina *Harr.*
Feltia subgothica *Steph.*
F. jaculifera *Guen.*
Paragrotis redimicula *Mon.*
Mamestra purpurissata *Grote*
M. meditata *Grote*
M. picta *Harr.*
M. renigera *Steph.*
M. olivacea *Morr.*
Nephelodes minians *Guen.*
Heliophila unipunctata *Haw.*
H. luteopallens *Sm.*
Tricholita signata *Walk.*
Cucullia intermedia *Spey.*
Gortyna nictitans *Bork.*
Orthosia helva *Grote*
Trigonophora periculosa *Guen.*
Heliothis armiger *Hübn.*
Euthisanotia grata *Fabr.*
Plusia aerea *Hübn.*
P. aeriodes *Grote*
P. balluca *Geyer*
Autographa bimaculata *Steph.*
A. precationis *Guen.*
A. brassicae *Riley*
A. rectangula *Kirby*
A. u-aureum *Guen.*

Autographa falcigera *Kirby*
Drasteria erechtea *Cram.*
Eustrotia carneola *Guen.*
Catocala unijuga *Walk.*
Parallelia bistriaris *Hübn.*
Datana integerrima *Gr. & Rob.*
Notolophus badia *Hy. Edwards*
Malacosoma americana *Fabr.*
M. disstria *Hübn.*
Eudule mendica *Walk.*
Euchoeca albovittata *Guen.*
Eustroma diversilineata *Hübn.*
Orthofidonia vestaliata *Guen.*
Cingilia catenaria *Drury*
Xanthotype crocataria *Fabr.*
Sabulodes transversata *Drury*
Sesia tipuliformis *Clerck*
Desmia funeralis *Hübn.*
Evergestis straminalis *Hübn.*
Tholeria reversalis *Guen.*
Hypsopygia costalis *Fabr.*
Epagoge sulfureana *Clem.*
Archips rosaceana *Harr.*
A. rosana *Linn.*
A. parallela *Rob.*
A. argyrospila *Walk.*
Adela purpura *Walk.*
Acrobasis rubrifasciella *Pack.*

Hemiptera

Homaemus aeneifrons *Say*
Eurygaster alternatus *Say*
Canthophorus cinctus *Beauv.*
Podisus placidus *Uhl.*
P. maculiventris *Say*
Brochymena quadripustulata *Fabr.*
Cosmopepla carnifex *Fabr.*
Mormidea lugens *Fabr.*
Euschistus servus *Say*
E. fissilis *Uhl.*
E. tristigmus *Say*
E. variolarius *Beauv.*
Coenus delius *Say*
Pentatoma juniperina *Linn.*
Murgantia histrionica *Hahn.*
Nezara hilaris *Say*
Anasa tristis *DeG.*
Corizus novaeboracensis *Sign.*
Alydus eurinus *Say*
Leptocoris trivittatus *Say*
Nysius augustatus *Uhl.*
Ischnorhynchus didymus *Zett.*
Cymus angustatus *Stal.*
Blissus leucopterus *Say*
Peliopelta abbreviata *Uhl.*
Lygaeus turcicus *Fabr.*
Ligyrocoris sylvestris *Linn.*
L. constrictus *Say*
Brachytropis calcarata *Fall.*
Miris affinis *Reut.*
Leptopterna dolobrata *Linn.*
Lopidea media *Say*
Lomatopleura caesar *Reut.*
Calocoris rapidus *Say*
Lygus pabulinus *Linn.*
L. pratensis *Linn.*
L. monachus *Uhl.*
Poeciloscytus basalis *Reut.*
Poecilocapsus lineatus *Fabr.*
P. goniphorus *Say*
Systratiotus venaticus *Uhl.*
Capsus ater *Linn.*
Pilophorus crassipes *Uhl.*
P. amoenus *Uhl.*
Stiphrosoma stygica *Say*
Plagiognathus obscurus *Uhl.*
P. fraternus *Uhl.*
Piesma cinerea *Say*
Corythuca arcuata *Say*
C. ciliata *Say*
C. juglandis *Fitch*
C. marmorata *Uhl.*
Gargaphia amorphae *Walsh*
Brachyrhynchus moestus *Stal.*
Phymata wolffii *Stal.*
Coriscus subcoleoptratus *Kirby*
C. inscriptus *Kirby*
Nabis rufusculus *Reut.*
Acholla multispinosa *DeG.*
Limnotrechus marginatus *Say*
Belostoma americanum *Leidy.*
Notonecta undulata *Say*
Corixa calva *Say*
C. abdominalis *Say*

Tibicen septendecim *Linn.*
T. tibicen *Linn.*
Entylia bactriana *Germ.*
Pubilia concava *Say*
Ceresa diceros *Say*
C. bubalus *Fabr.*
C. turbida *Godg.*
Stictocephala inermis *Fabr.*
Smilia camelus *Fabr.*
Telamona ampelopsidis *Harr.*
Enchenopa binotata *Say*
Campylenchia curvata *Fabr.*
Scolops sulcipes *Say*
Cixius stigmatus *Say*
Stenocranus dorsalis *Fitch*
Liburnia lateralis *V. D.*
L. lutulenta *V. D.*
Ormenis pruinosa *Say*
Lepyronia quadri-angularis *Say*
Aphrophora saratogensis *Fitch*
Philaenus lineatus *Linn.*
Clastoptera obtusa *Say*
C. proteus *Fitch*
Tettigonia gothica *Sign.*
Diedrocephala coccinea *Forst.*
Draeculacephala novaeboracensis *Fitch*
D. mollipes *Say*
Bythoscopus pruni *Prov.*
Idiocerus suturalis *Fitch*
I. lachrymalis *Fitch*
Agallia quadri-punctata *Prov.*
A. sanguinolenta *Prov.*
Platymetopius acutus *Say*
Platymetopius frontalis *V. D.*
Deltocephalus sayi *Fitch*
D. inimicus *Say*
D. melsheimeri *Fitch*
Athysanus curtisii *Fitch*
Phlepsius irroratus *Say*
Scaphoideus immixtus *Say*
Thamnotettix clitellaria *Say*
Chlorotettix unicolor *Fitch*
Cicadula slossoni *V. D.*
C. sep-notata *Fallen.*
Gnathodus punctatus *Thunb.*
Empoasca rosae *Harr.*
E. bifasciatus *G. & D.*
Typhlocyba comes *Harr.*
T. rosae *Linn.*
Psylla carpini *Fitch*
P. pyricola *Forst.*
P. rhois *Glov.*
P. annulata *Fitch*
Trioza tripunctata *Fitch*
Lachnus dentatus *L. B.*
Lepidosaphes ulmi *Linn.*
Aspidiotus perniciosus *Comst.*
A. ostreaeformis *Curt.*
A. ancylus *Putn.*
Aulacaspis rosae *Bouché*
Diaspis boisduvalii *Sign.*
Chionaspis furfura *Fitch*
C. euonymi *Comst.*
C. americana *Johns.*
Eulecanium nigrofasciatum *Perg.*
Pulvinaria innumerabilis *Rathv.*
Gossyparia spuria *Modeer.*

Trichoptera

Leptocerus resurgens *Walk.*
Hydropsyche scalaris *Hag.*
Halesus guttifer *Walk.*
Goniotaulius dispectus *Walk.*
Neuronia postica *Walk.*

Mecoptera

Panorpa rufescens *Rambus*
P. maculosa *Hag.*
Panorpa signifer *Banks.*
Bittacus strigosus *Hag.*

Neuroptera

Polystoechotes punctatus *Fabr.*
Corydalis cornuta *Linn.*
Chrysopa oculata *Say*
Sialis infumata *Newm.*

Orthoptera

Melanopus femur-rubrum *DeG.*
M. femoratus *Scudd.*
M. atlanis *Riley*
Phylloptera oblongifolia *DeG.*
Diapheromera femorata *Say*
Camnula pellucida *Scudd.*
Dissosteira carolina *Linn.*
Circotettix verruculatus *Kirby*
Oecanthus pini *Beut.*
O. niveus *DeG.*
O. nigricornis *Walk.*

Appendix

NEW SPECIES OF CECIDOMYIIDAE

It has been considered advisable to publish the following preliminary descriptions in advance of an extended monograph on this group now in preparation. The generic references are strictly provisional and may need revision after further study.

Campylomyza sylvestris n. sp.

Female. Length 1 mm. Antennae extending to the base of the abdomen, sparsely haired, yellowish, 11 segments. Mesonotum reddish brown; scutellum lighter, postscutellum dark brown. Abdomen dull yellowish with the basal segments reddish, the distal ones dark brown. Legs fuscous yellowish.

Taken at Davidson's River, N.C. September 23, 1906.

Type Cecid. a1620, N.Y. State Museum.

Campylomyza brevicornis n. sp.

Female. Length 2 mm. Antennae $\frac{1}{4}$ the length of the body, thickly haired, reddish brown, 11 segments. Mesonotum dark brown; scutellum and postscutellum dark reddish brown; abdomen reddish brown; membrane and pleurae dark salmon; ovipositor dark brown. Legs dark reddish brown; tarsi lighter, distal segments dark brown.

Taken at Nassau, N.Y. August 10, 1906.

Type Cecid. 756, N.Y. State Museum.

Campylomyza flavoscuta n. sp.

Male. Length 1 mm. Antennae about as long as the body, sparsely haired, light brown, probably 11 segments. Mesonotum yellowish brown, scutellum reddish brown, postscutellum yellowish. Abdomen pale reddish brown. Legs a nearly uniform pale fuscous yellowish.

Taken at Albany, N.Y. June 4, 1906.

Type Cecid. 117, N.Y. State Museum.

Campylomyza toxicodendri n. sp.

Female. Length 2 mm. Antennae hardly extending to the base of the abdomen, thickly clothed with whitish hairs, dark brown, 12 segments. Mesonotum dark brown with posterior median area yellowish brown. Scutellum and postscutellum pale reddish yellow, the former with sparse yellowish hairs. Abdomen pale fuscous yellowish. Terminal segments and ovipositor dark brown or black. Legs a nearly uniform pale straw-yellow.

Taken at Albany, N.Y. June 4, 1906, on poison ivy.

Type Cecid. 122, N.Y. State Museum.

Campylomyza leguminicola n. sp.

Male. Length .75 mm. Antennae extending to the base of the 2d abdominal segment, sparsely haired, reddish brown, 14 segments. Mesonotum dark brown; scutellum and postscutellum reddish brown; abdomen dark brown or black. Femora and tibiae brownish straw color, lighter ventrally, tarsi a pale straw color, terminal segments darker.

Taken at Albany, N.Y. June 4, 1906, on red clover.

Type Cecid. 121, N.Y. State Museum.

Campylomyza vitinea n. sp.

Male. Length .75 mm. Antennae shorter than the body, sparsely clothed with long hairs, brown, 13 segments. Mesonotum dark brown; scutellum and abdomen brown; genitalia darker. Femora and tibiae pale, tarsi darker.

Taken at Albany, N.Y. August 14, 1906, about grape or ash.

Type Cecid. 759, N. Y. State Museum.

Campylomyza graminea n. sp.

Male. Length 1.5 mm. Antennae about $\frac{2}{3}$ the length of the body, sparsely haired, dark brown, 14 segments. Head and thorax black or dark brown, abdomen dark brown; pleurae and incisures yellowish brown. Legs yellowish transparent or reddish.

Taken on grass at Karner, N.Y. April 27, 1906.

Type Cecid. 5, N.Y. State Museum.

Campylomyza populi n. sp.

Male. Length 1 mm. Antennae extending to the basal abdominal segments, sparsely haired, dark brown, 14 segments. Meso-

notum dark brown; scutellum and postscutellum a little lighter. Abdomen dark brown, very sparsely clothed with fine yellowish hairs. Legs nearly uniform, light slaty brown.

Taken at Albany, N.Y. June 4, 1906, on the large leafed poplar.

Type Cecid. 115, N.Y. State Museum.

Campylomyza balsamicola n. sp.

Male. Length .75 mm. Antennae nearly as long as the body sparsely haired, dark brown, 14 segments. The entire body a nearly uniform dark brown. Legs a nearly uniform straw-brown.

Taken on balsam at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 145, N.Y. State Museum.

Campylomyza pomiflorae n. sp.

Male. Length .75 mm. Antennae nearly as long as the body, rather thickly haired, dark brown, 14 segments. Head, thorax and abdomen dark brown. Legs brownish yellow; tarsi light yellow; tip of posterior tibiae, anterior tarsi and the terminal segments of the middle and posterior tarsi variably tinged with reddish.

Taken at Karner, N.Y. May 4, 1906, flying about shad bush and cherry bloom.

Type Cecid. 11, 12, 13 and 15, N.Y. State Museum.

Campylomyza photophila n. sp.

Male. Length .5 mm. Antennae nearly as long as the body, thickly haired, dark brown, 14 segments. Thorax dark reddish; abdomen dark brown, somewhat fuscous posteriorly. Legs fuscous yellowish, distal tarsal segments reddish brown.

Taken at Albany, N.Y. August 8, 1906; also at Poughkeepsie.

Type Cecid. 747, 748 and 753, N.Y. State Museum.

Campylomyza modesta n. sp.

Male. Length .4 mm. Antennae probably twice as long as the body, sparsely haired, light brown, probably 14 segments. Entire body a nearly uniform dark brown. Legs a nearly uniform yellowish straw; tarsi tinged with carmine.

Taken on balsam at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 147, N.Y. State Museum.

Campylomyza gibbosa n. sp.

Male. Length 1 mm. Antennae longer than the body, sparsely haired, dark brown, probably 14 segments. Head, thorax and abdomen dark brown; legs pale straw color, irregularly tinged with carmine, especially near the articulations.

Taken on spruce at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 162, N.Y. State Museum.

Campylomyza carolinae n. sp.

Male. Length .4 mm. Antennae twice the length of the body, light brown, 14 segments. Mesonotum reddish brown; scutellum, postscutellum and basal abdominal segments dark reddish brown, the distal abdominal segments dull black. Legs nearly uniform fuscous yellowish.

Female. Length .5 mm. Antennae a little longer than the body, light brown, 11 segments; otherwise as in the male.

Taken at Davidson's River, N.C. September 23, 1906.

Type Cecid. a1619, N.Y. State Museum.

Campylomyza carpini n. sp.

Male. Length 1 mm. Antennae nearly as long as the body, thickly haired, dark brown, 15 segments. Mesonotum black; scutellum and abdomen dark brown. Legs pale, grayish, tarsi variably tinged with reddish.

Taken at Albany, N.Y. June 1, 1906, on ironwood.

Type Cecid. 107, N.Y. State Museum.

Campylomyza lignivora n. sp.

Male. Length 1.3 mm. Antennae extending to the 4th abdominal segment, sparsely clothed with long hairs, light brown, 16 segments. Abdomen dark red, the dorsal sclerites slightly ferruginous, sparsely clothed with short setae. Legs a nearly uniform fuscous yellowish; femora and tibiae hairy.

Female. Length 2.5 mm. Antennae extending to the base of the abdomen, densely yellowish haired, yellowish brown, 21 segments. Other color characters practically as in the male.

Found at Davidson's River, N.C. September 21, 1906, breeding in the fungus-affected heart of a hard pine.

Type Cecid. a1614, N.Y. State Museum.

Campylomyza cerasi n. sp.

Female. Length .75 mm. Antennae as long as the body, sparsely haired, dark brown, annulate with lighter, 14 segments. Head, thorax and abdomen dark brown; legs light brown with indistinct reddish markings at the articulations between the coxae and femora; the latter and tibiae; on the apex of the tibiae; and with more or less suffused reddish tints on the tarsi.

Taken at Nassau, N.Y. May 15, 1906, sweeping in the vicinity of wild cherry.

pe Cecid. 18, N.Y. State Museum.

Campylomyza tsugae n. sp.

Female. Length 1 mm. Antennae extending to the base of the abdomen, thickly clothed with fine hairs, dark brown, 13 segments. Mesonotum dark brown; scutellum yellowish brown. Abdomen dark brown. Legs a nearly uniform dark straw, terminal segment slightly darker.

Taken at Lake Clear, N.Y. June 7, 1906, on hemlock.

Type Cecid. 166, N.Y. State Museum.

Campylomyza karnerensis n. sp.

Male. Length 1.5 mm. Antennae probably nearly as long as the body, sparsely haired, dark brown, probably 14 segments. Mesonotum dark brown; abdomen reddish brown. Legs semitransparent with irregular reddish bands on the tarsi and at the tip of the tibiae, particularly on the posterior legs.

Taken at Karner, N.Y. May 16, 1906.

Type Cecid. 29, N.Y. State Museum.

Campylomyza acerifolia n. sp.

Male. Length .4 mm. Antennae longer than the body, sparsely haired, dark brown, 16 segments. Mesonotum dark brown; scutellum yellowish brown, postscutellum darker. Abdomen light brown; legs mostly dark brown.

Taken at Albany, N.Y. May 21, 1906, on soft maple.

Type Cecid. 71, N.Y. State Museum.

Catocha sambuci n. sp.

Female. Length 1.5 mm. Antennae $\frac{1}{3}$ the length of the body, sparsely haired, dark brown, fuscous yellowish basally, 11 segments.

Mesonotum reddish brown; scutellum and postscutellum fuscous reddish yellow. Abdomen fuscous yellow, membrane and pleurae lighter. Ovipositor slightly fuscous. Legs dark fuscous yellowish.

Taken at Albany, N.Y. August 6, 1906, on elder.

Type Cecid. 743, N.Y. State Museum.

Catocha sylvestris n. sp.

Female. Length 3 mm. Antennae extending to the second abdominal segment, sparsely haired, dark brown, basally pale yellowish, 11 segments. Mesonotum dark brown, the median posterior area dark yellowish. Scutellum pale yellowish orange. Postscutellum dark brown; abdomen yellowish brown; incisures and pleurae pale salmon; terminal segment pale yellowish; coxae pale yellowish, femora semitransparent, tibiae and tarsi fuscous yellowish.

Taken at Davidson's River, N.C. September 23, 1906.

Type Cecid. a1642, N.Y. State Museum.

Catocha spiraeina n. sp.

Male. Length 1.5 mm. Antennae about as long as the body, rather thickly clothed with fine hairs, dark brown, yellowish basally, 16 segments. Mesonotum darker brown; scutellum reddish brown, slightly fuscous apically and with sparse apical setae. Postscutellum reddish brown. Abdomen dark brown, rather thickly clothed with fine setae. Genitalia fuscous yellowish. Legs a nearly uniform yellow straw color; articulations tinged with carmine, tarsi slightly darker.

Taken at Albany, N.Y. June 15, 1906, on spirea.

Type Cecid. 274, N.Y. State Museum.

Catocha solidaginis n. sp.

Male. Length .75 mm. Antennae nearly as long as the body, thickly haired, dark brown, 16 segments. Mesonotum dark brown; scutellum dark carmine, postscutellum a little lighter. Abdomen fuscous yellowish, distal segment somewhat darker. Legs mostly pale fuscous yellowish, tarsi dark brown.

Taken on Solidago at Newport, N.Y. July 25, 1906.

Type Cecid. 700, N.Y. State Museum.

Micromyia corni n. sp.

Male. Length 1.5 mm. Antennae very short, not extending to the base of the abdomen, sparsely haired, dark brown, 9 segments.

Mesonotum dark brown, submedian lines ornamented with pale yellowish setae. Scutellum and postscutellum dark brown. Abdomen dark brown with a distinct reddish tint distally and nearly naked. Legs a nearly uniform dark reddish; tarsi dark brown.

Taken on Cornus at Albany, N.Y. July 3, 1906.

Type Cecid. 459, N.Y. State Museum.

Micromyia diervillae n. sp.

Male. Length 1.5 mm. Antennae scarcely extending to the base of the abdomen, sparsely haired, dark brown, 9 segments. Mesonotum dark brown; scutellum, postscutellum and abdomen a nearly uniform dark brown, the latter slightly yellowish distally. Legs a variable fuscous, the posterior tarsi tinged with carmine.

Taken on bush honeysuckle at Karner, N.Y. June 5, 1906.

Type Cecid. 490, N.Y. State Museum.

Lestremia pini n. sp.

Male. Length 1.5 mm. Antennae probably as long as the body, rather sparsely haired, dark brown, 16 segments. Mesonotum dark brown with a very few whitish setae; scutellum light brown; postscutellum yellowish brown. Abdomen a nearly uniform grayish brown, terminal segments slightly darker. Coxae, femora and tibiae mostly whitish transparent; tarsi fuscous.

Taken on pine at Albany, N.Y. July 16, 1906.

Type Cecid. 562, N.Y. State Museum.

Lasioptera rubra n. sp.

Male. Length 1.25 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 14 segments, face fuscous yellowish. Mesonotum dark brown, rather thickly clothed along its margins with fuscous scales; scutellum with numerous reddish apical setae; postscutellum dark. Abdomen deep red, rather thickly clothed with fuscous scales. Legs mostly a fuscous yellowish or reddish. Tarsi dark brown.

Bred from a variegated blister gall on Solidago rugosa at Albany, N.Y. July 15, 1906.

Type Cecid. 650, N.Y. State Museum.

Lasioptera tuberculata n. sp.

Male. Length 1.25 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, yellowish basally, 14 segments, face yellowish. Mesonotum dark brown, thickly clothed

with fuscous hairs, submedian lines yellowish. Scutellum reddish brown, postscutellum dark silvery. Abdomen dark brown, darker on the basal segments. The incisures, pleurae and the distal segments pale orange. Genitalia fuscous yellowish; coxae and base of femora yellowish. Other portions of the legs nearly uniform dark brown.

Bred from a variegated blister gall on Solidago rugosa at Albany, N.Y. July 15, 1906.

Type Cecid. 650b, N.Y. State Museum.

Lasioptera cinerea n. sp.

Male. Length 1.5 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 16 or 17 segments; head dark brown. Mesonotum and scutellum dark brown, the latter silvery white apically, postscutellum very dark brown. Abdomen dark brown, rather thickly clothed dorsally with silvery white scales. Legs mostly dark brown, lighter ventrally. Tarsi darker than femora and tibiae.

Taken on Ilex verticillata at Albany, N.Y. May 21, 1906.

Type Cecid. 73, N.Y. State Museum.

Lasioptera viburni n. sp.

Male. Length 1 mm. Antennae extending to the 2d abdominal segment, sparsely haired, dark brown, at least 18 and probably a larger number of segments; eyes margined posteriorly with silvery white scales. Mesonotum dark brown, margined laterally with yellowish, anteriorly with a few sparse silvery white hairs, submedian lines yellowish. Scutellum and postscutellum nearly uniformly fuscous orange. Abdomen yellowish orange with irregular fuscous markings on the 1st, 2d, 3d and 4th abdominal segments; these marks are narrowly divided in the middle and slightly prolonged sublaterally, giving somewhat the appearance of a double row of subquadrate fuscous spots. Coxae, femora and tibiae pale yellowish straw; tarsi nearly uniformly dark brown.

Taken on maple-leaved arrowwood at Albany, N.Y. June 10, 1906.

Type Cecid. 186, N.Y. State Museum.

Lasioptera consobrina n. sp.

Male. Length 1 mm. Antennae hardly extending to the base of the abdomen, sparsely haired, brown, 18 segments; face yellowish brown with patches of whitish hairs; eyes margined posteriorly

with the same. Mesonotum dark brown, sparsely margined anteriorly and laterally with silvery white scales; posteriorly with a conspicuous patch of the same. Scutellum pale orange, apically with numerous whitish hairs, postscutellum pale orange. Abdomen dark brown; 1st segment clothed with silvery white scales, the 2d, 3d and 4th segments each with subquadrate, submedian spots clothed with yellowish white scales; 5th segment with a few whitish scales sublaterally; 6th with a few median ones along the posterior margin, and a similar patch of the same color laterally. Legs rather variable, yellowish transparent, with some dark brown dorsally. Tarsi largely and irregularly tinged with carmine.

Taken on maple-leaved arrowwood at Albany, N.Y. June 10, 1906. Type Cecid. 183a, N.Y. State Museum.

Lasioptera canadensis n. sp.

Male. Length 1.5 mm. Antennae hardly reaching to the base of the abdomen, sparsely haired, dark brown, 18 or 19 segments; eyes margined posteriorly with silvery white scales. Mesonotum dark brown, ornamented with fragmentary submedian lines of whitish scales posteriorly and a somewhat broken patch of the same on the lateral posterior area near the base of the wings. Scutellum dark brown, rather thickly ornamented with silvery white scales; postscutellum dark brown. Abdomen dark brown, the 4 basal segments each with conspicuous submedian quadrate silvery spots. Legs mostly pale yellowish straw; tarsi reddish or dark brown on the distal segments.

Taken on blueberry or low bushes at Albany, N.Y. May 21, 1906. Type Cecid. 74, N.Y. State Museum.

Lasioptera impatientifolia n. sp.

Male. Length 1.6 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, yellowish basally, 19 segments; face fuscous; eyes margined posteriorly with dull silvery scales. Mesonotum dark brown, thickly clothed with silvery and pale yellowish scales. In one specimen the mesonotum is entirely covered by scales. Scutellum dark brown with pale yellowish apically; postscutellum yellowish brown. Abdomen dark brown with the 1st segment clothed sparsely with silvery white scales; the 4th and 5th segments thickly clothed with dark brown scales, and the others more sparsely clothed with scales of the same color.

The posterior margins of the segments a dull yellowish orange; 7th and 8th segments mostly yellowish orange, the former narrowly margined posteriorly with dark brown. Genitalia dark brown. Pleurae dark brown, venter sparsely clothed with silvery white scales. Coxae fuscous yellowish; femora and tibiae dark brown, pale yellowish apically; tarsi nearly uniformly dark brown.

Female. Length 1.2 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 23 segments; face fuscous; eyes margined posteriorly with dull silvery scales. Mesonotum a rich purplish brown, broadly margined laterally and anteriorly with dull silvery scales. Scutellum yellowish brown, postscutellum a little darker. Abdomen dark purplish brown, the segments narrowly margined posteriorly with dull silvery, that of the 2d and 3d apparently broadly interrupted along the median line. Ovipositor pale orange; legs mostly a rich brown; the femora and tibiae annulate with light yellow at the articulations.

Bred from a leaf gall of touch-me-not or snapdragon (Impatiens fulva) at Albany, N.Y. August 10, 1906.

Type Cecid. a1166, N.Y. State Museum.

Lasioptera caryae n. sp.

Male. Length 2 mm. Antennae shorter than the head and thorax, sparsely clothed with fine setae, brown, 20 segments. Head dark brown with two silvery spots at the base of the antennae. Mesonotum covered with bronzy scales; scutellum and postscutellum with long scales. Pleurae with very large white silvery scales. Abdomen clothed with pale brown scales, those of the last two segments having a bluish tinge. Legs thickly clothed with scales, yellowish at the base; the tibiae and tarsi dark brown.

Taken on hickory at Albany, N.Y. June 19, 1906.

Type Cecid. 335, N.Y. State Museum.

Lasioptera desmodii n. sp.

Male. Length 1 mm. Antennae extending to the base of the abdomen, sparsely clothed with fine hairs, dark brown, basally yellowish transparent, 21 or 22 segments. Mesonotum nearly uniformly dark brown, margined anteriorly and laterally with silvery white scales and with a sprinkling of the same on the margin of the nearly naked posterior median area. Scutellum brownish, rather thickly clothed with smaller white hairs and a few long apical bristles; postscutellum dark brown. Abdomen dark brown,

the 1st segment thickly clothed with snow-white hairs, the 2d and 3d and 4th segments broadly margined posteriorly with the same, the bands being wider on the median line; the 5th narrowly margined with white, the 7th brown; the 8th yellowish, the latter two margined posteriorly with long white bristles. Ventral surface dark brown with a broad median silvery white stripe. Genitalia dark brown, tipped with silvery white; coxae yellowish transparent; femora and tibiae dark brown banded at the extremities with yellowish white.

Female. Length 2 mm. Coloration practically as in the other sex. Ovipositor when extended probably ¾ the length of the abdomen.

Bred May 31, 1906, from stem gall on tick trefoil (Meibomia cuspidatum or M. canadensis), taken at Albany, N.Y.

Type Cecid. 88, N.Y. State Museum.

Lasioptera corni n. sp.

Female. Length .9 mm. Antennae ½ the length of the body sparsely haired, brownish black, 18 segments. Mesonotum brownish yellow, yellowish posteriorly. Submedian lines broad, narrowly separated. The median line shorter. Scutellum yellow, postscutellum yellowish. Abdomen dark brown with the 1st segment golden, the others yellow banded apically. Ovipositor yellowish. Coxae whitish transparent; femora pale; tibiae pale, brownish above toward the apex; tarsi brown.

Bred from an oval ocellate leaf gall on Cornus paniculata taken at Albany, N.Y. July 16, 1906.

Type Cecid. 764a, a1151, N.Y. State Museum.

Lasioptera hamata n. sp.

Female. Length 1.5 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 18 segments; lower portion of face and base of antennae sparsely ornamented with white hairs; eyes margined posteriorly with the same. Mesonotum brownish black; scutellum and postscutellum dark brown. Abdomen dark brown with the 3d, 4th and 5th abdominal segments margined posteriorly with whitish scales. Terminal segments pale yellowish. Coxae dark yellowish brown; femora pale yellowish; tibiae and tarsi slightly variable, dark brown.

Taken on Solidago at Nassau, N.Y. June 14, 1906.

Type Cecid. 280, N.Y. State Museum.

Lasioptera abhamata n. sp.

Female. Length 1.5 mm. Antennae scarcely extending to the base of the abdomen, sparsely haired, dark brown, 21 or 22 segments. Body nearly uniformly dark brown, the submedian lines on the mesonotum sparsely clothed with fine hairs. Legs a nearly uniform dark brown, lighter ventrally, the distal tarsal segments somewhat darker.

Taken at Karner, N.Y. June 4, 1906.

Type Cecid. 130, N.Y. State Museum.

Lasioptera quercina n. sp.

Female. Length 1.5 mm. Antennae hardly extending to the base of the abdomen, stout, sparsely haired, dark brown, 18 segments. Mesonotum dark brown, scutellum and postscutellum very dark brown. Abdomen a nearly uniform reddish brown, rather thickly clothed with ferruginous hairs. Coxae yellowish or reddish yellow, semitransparent; femora and tibiae dark brown, lighter at the articulations; tarsi dark brown.

Taken on white oak at Albany, N.Y. June 1, 1906.

Type Cecid. 96, N.Y. State Museum.

Clinorhyncha filicis n. sp.

Female. Length 1 mm. Antennae extending to the base of the abdomen, dark brown, sparsely haired, 10 segments. Mesonotum dark brown, submedian lines yellowish, thickly clothed with fuscous yellowish hairs. Scutellum dark brown; postscutellum brown. Abdomen dark brown basally with the 2d to 5th segments reddish brown, terminal segments yellowish. Legs a nearly uniform dark brown, lighter ventrally.

Taken on fern at Nassau, N.Y. June 24, 1906.

Type Cecid. 386, N.Y. State Museum.

Choristoneura laeviana n. sp.

Male. Length 1.5 mm. Antennae short, hardly extending to the base of the abdomen, sparsely haired, dark brown, 14 segments; face reddish brown; eyes margined posteriorly with pale yellowish scales. Mesonotum dark brown with broad submedian stripes, thickly clothed with short yellowish scales; scutellum dark brown, postscutellum reddish brown. Abdomen dark brown, with the incisures and pleurae pale yellowish red. Genitalia dark brown.

Legs mostly dark brown, the tarsal segments invariably pale yellowish or reddish.

Bred September 1, 1906, from a whitish blister gall on Aster laevis taken at Albany, N.Y.

Type Cecid. a1281, N.Y. State Museum.

Choristoneura paniculata n. sp.

Male. Length 2 mm. Antennae shorter than the body, sparsely white haired, black, 14 segments. Mesonotum dark brown with a pale median line. Scutellum dark brown, postscutellum a little paler. Abdomen dark brown with some similar scales; membrane and pleurae concolorous. Legs pale brown or slightly yellowish.

Bred August 10, 1906, from a yellowish or brownish oval blister gall on Aster paniculata.

Type Cecid. 757, N.Y. State Museum.

Choristoneura basalis n. sp.

Male. Length 1.5 mm. Antennae ¾ the length of the body, sparsely haired, dark brown, probably composed of 14 segments; face fuscous yellowish. Mesonotum dark brown, submedian lines sparsely ornamented with yellowish hairs; scutellum yellowish brown, postscutellum yellowish. Abdomen with the 4 basal segments yellowish white, the distal segment pale orange dorsally, sparsely clothed with fuscous and yellowish scales. Genitalia fuscous; coxae pale yellowish; femora yellowish basally, dark brown distally; tibiae and tarsi dark brown.

Taken on hazel at Albany, N.Y. August 6, 1906.

Type Cecid. 739, N.Y. State Museum.

Choristoneura liriodendri n. sp.

Male. Length 2.5 mm. Antennae not extending to the base of the abdomen, sparsely clothed with fine hairs, dark brown, lighter basally, 18 segments. Mesonotum dark brown, shining, clothed with long white hairs, more abundant anteriorly and seen from the side appearing like a collar. Submedian lines rather abundantly clothed with fine hairs; scutellum and postscutellum reddish; abdomen with the basal segments covered with white scales; the 2d black basally, the dark collar with 3 distal prolongations, that on the median line extends across the segment; the 3d segment has 3 dark points extending across the segment, the 4th is decidedly reddish yellow, the 5th narrow at the base and clothed with a patch

of dark scales. Legs pale yellow with the tarsi slightly darker at the tips of the segments.

Taken on tulip tree at Albany, N.Y. June 8, 1906.

Type Cecid. 291, N.Y. State Museum.

Choristoneura caryae n. sp.

Male. Length 2 mm. Antennae shorter than the head and thorax, sparsely haired, dark brown, composed of 15 and probably 20 segments. Head dark brown with two silvery spots at the base of the antennae. Mesonotum covered with bronzy scales; scutellum and postscutellum with long scales; tibiae clothed with very large white patches of silvery scales. Abdomen clothed with pale brown scales, those on the last 2 segments with a bluish tinge. Legs thickly clothed with scales, pale yellowish at the base; the tibiae and tarsi dark brown.

Taken on hickory at Albany, N.Y. June 19, 1906.

Type Cecid. 334, N.Y. State Museum.

Choristoneura abnormis n. sp.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 16 segments. Mesonotum, scutellum and postscutellum dark brown. Abdomen presumably a nearly uniform dark brown with irregular patches of whitish scales on the pleurae. Legs mostly dark brown.

Taken on Solidago at Albany, N.Y. July 24, 1906.

Type Cecid. 676, N.Y. State Museum.

Choristoneura convoluta n. sp.

Female. Length 1 mm. Antennae extending to the 2d abdominal segment, sparsely haired, light brown, fuscous basally, 17 segments. Mesonotum dark brown, submedian lines ornamented with sparse yellowish setae; scutellum and postscutellum yellowish brown. Abdomen nearly uniformly dark brown; ovipositor pale orange. Legs mostly uniformly dark brown with irregular yellowish markings. Anterior tibiae yellowish; tarsi yellowish, the segments tinged with reddish brown distally; mid and posterior tarsi mostly yellowish with a faint brown annulation on the 2d segment. Distal segment dark brown.

Bred from a convolute tip gall on Solidago taken at Albany, N.Y. August 11, 1906.

Type Cecid. a1307, N.Y. State Museum.

Choristoneura albomaculata n. sp.

Female. Length 2 mm. Antennae $\frac{1}{3}$ the length of the body, sparsely haired, pale yellowish, 18 segments. Face pale with a few scattering hairs on the front; eyes margined with whitish scales posteriorly. Mesonotum black with a pale median line; scutellum and abdomen black, the latter clothed with black scales and with six whitish spots on the lateral margin of the abdomen. Incisures reddish yellow; irregular spots of whitish scales occur below the wing insertion; ovipositor yellowish; coxae yellowish with a few white scales, the anterior and mid pair with long black setae anteriorly; femora with the basal $\frac{2}{3}$ whitish, the remainder black; tibiae black with a white line of scales down the inside; tarsi black.

Bred August 14, 1906, from a blister gall on Solidago taken at Albany, N.Y.

Type Cecid. 758, N.Y. State Museum.

Choristoneura cinerea n. sp.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely clothed with fine hairs, dark brown, 25 segments; face sparsely ornamented with whitish hairs. Mesonotum a nearly uniform dark brown, submedian lines ornamented with grayish hairs; scutellum dark brown with sparse apical setae; postscutellum dark brown. Abdomen dark brown; incisures and pleurae pale whitish orange, the basal segment thickly clothed with silvery white scales; the posterior margin of the 3d abdominal segment sparsely ornamented with silvery scales; terminal segments pale orange. Coxae dark yellowish; femora yellowish white with a more or less broad fuscous band near the middle. Anterior and mid tibiae fuscous dorsally, pale yellowish ventrally. Posterior tibiae pale yellowish; tarsi fuscous, lighter ventrally.

Taken at Albany, N.Y. June 21, 1906.

Type Cecid. 341, N.Y. State Museum.

Choristoneura hamamelidis n. sp.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 27 segments; face dark brown with patches of whitish scales below the insertion of the antennae; eyes margined posteriorly with silvery white. Mesonotum

shiny black, margined anteriorly and laterally with silvery white; the submedian lines ornamented with pale hairs. Scutellum dark brown, silvery white apically; postscutellum a nearly uniform dark brown. Abdomen a rich dark brown with the dorsum of the 1st abdominal segment, a minute median spot on the 2d, a broad apical band on the 3d and 4th segments, the two latter not extending to the margin, silvery white; terminal segment pale orange. Coxae and extremities of femora and tibiae yellowish transparent; tarsi a nearly uniform dark brown, lighter ventrally.

Taken on witch-hazel at Albany, N.Y. June 10, 1906.

Type Cecid. 181, N.Y. State Museum.

Rhabdophaga acerifolia n. sp.

Male. Length 1.5 mm. Antennae about $\frac{2}{3}$ the length of the body, thickly clothed with whitish hairs, dark brown, 15 segments. Mesonotum dark brown; scutellum reddish brown; postscutellum dark brown and orange, the basal abdominal segment dark brown, the others light brown, all sparsely clothed with whitish hairs. Genitalia dark brown; legs variably brownish, the tarsi darker.

Taken in the vicinity of maple and other trees and shrubs at Albany, N.Y. May 17, 1906.

Type Cecid. 36, N.Y. State Museum.

Rhabdophaga populi n. sp.

Male. Length 2 mm. Antennae extending nearly to the tip of the abdomen, thickly haired, dark yellowish, 18 segments. Face dark brown, eyes narrowly margined posteriorly with silvery white. Mesonotum dark brown with distinct submedian lines of silvery white hairs and groups of the same at the base of the wings. Scutellum dark brown; postscutellum reddish brown; abdomen dark brown, thinly clothed dorsally with scattering silvery hairs and rather thickly clothed laterally. Legs a nearly uniform brown dorsally, silvery white ventrally; tarsi possibly a little darker.

Female. Length 2.5 mm. Antennae extending to the base of the abdomen; color characters practically as in the other sex.

Bred May 23, 1906, from cocoons taken at the base of poplar buds at Albany, N.Y.

Type Cecid. 78x, N.Y. State Museum.

Rhabdophaga absobrina n. sp.

Male. Length 2.5 mm. Antennae extending to the base of the abdomen, thickly clothed with long whitish hairs, dark brown, 19 segments. Face dark brown; mesonotum dark brown with distinct sublateral and submedian rows of golden yellowish hairs; scutellum and postscutellum reddish brown. Abdomen dark brown, rather thickly clothed laterally with silvery white hairs in whitish patches. Legs a variable brown, lighter ventrally; tarsi dark brown.

Taken on maple and other trees and shrubs at Albany, N.Y. May 17, 1906.

Type Cecid. 40, N.Y. State Museum.

Rhabdophaga consobrina n. sp.

Male. Length 3 mm. Antennae shorter than the body, sparsely clothed with fine hairs, dark brown, 19 segments. Mesonotum dark brown, the submedian lines rather thickly clothed with dark hairs. Scutellum dark brown, thickly clothed with yellowish white hairs; postscutellum reddish anteriorly, dark brown posteriorly. Abdomen dark brown, sparsely clothed with whitish hairs; legs dark brown, lighter ventrally; tarsi darker.

Taken near maple and other trees and vines at Albany, N.Y. May 17, 1906.

Type Cecid. 39. N.Y. State Museum.

Rhabdophaga annulata n. sp.

Female. Length 1 mm. Antennae a little shorter than the body, thickly haired, dark brown, fuscous yellowish basally, 14 segments. Face fuscous yellowish; mesonotum dark brown, submedian lines yellowish; scutellum dark brownish, fuscous apically; postscutellum yellowish. Abdomen dark yellowish, basal segments fuscous dorsally, terminal segments tinged with pale orange. Coxae and femora pale orange. The latter fuscous distally; tibiae pale straw variably tinged with carmine; tarsi light brown.

Taken on goldenrod or aster at Albany, N.Y. July 6, 1906.

Type Cecid. 514, N.Y. State Museum.

Rhabdophaga borealis n. sp.

Female. Length 1.5 mm. Antennae nearly as long as the body, sparsely haired, light brown, probably 14 segments. Face dark yellowish; mesonotum dark brown, lighter posteriorly, submedian lines

yellowish, ornamented with fine hairs. Scutellum slightly yellowish; abdomen a nearly uniform dark carmine; legs a nearly uniform pale brown; tarsi slightly darker.

Taken on spruce at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 159, N.Y. State Museum.

Dasyneura bidentata n. sp.

Male. Length 1.25 mm. Antennae extending to the base of the abdomen, rather sparsely clothed with fine setae, dark brown, fuscous yellowish basally, 13 segments. Face fuscous yellowish; mesonotum dark brown with distinct submedian lines; scutellum rather dark red or reddish orange; postscutellum dark red. Abdomen reddish or dark salmon; segments margined with pale yellowish posteriorly. Genitalia slightly fuscous; coxae and basal portions of femora pale yellowish; other parts of legs brownish; tarsi slightly darker, lighter ventrally.

Taken on white oak at Albany, N.Y. June 21, 1906.

Type Cecid. 344, N.Y. State Museum.

Dasyneura cerasi n. sp.

Male. Length 1 mm. Antennae apparently ½ longer than the body, thickly clothed with long setae, dark brown, yellowish basally, 12 segments. Face fuscous yellowish, mesonotum dark brown, submedian lines pale yellowish, sparsely ornamented with fine setae. Scutellum pale yellowish with sparse apical setae; postscutellum fuscous yellowish; abdomen dark yellowish fuscous, rather thickly clothed with pale yellowish hairs, basal segments slightly lighter. Legs pale straw color; tarsi slightly darker.

Taken on black cherry at Albany, N.Y. June 21, 1906.

Type Cecid. 343, N.Y. State Museum.

Dasyneura photophila n. sp.

Male. Length .75 mm. Antennae probably nearly as long as the body, sparsely haired, dark brown, probably 14 segments. Face dark brown, sparsely clothed with whitish hairs; eyes large, black, margined posteriorly with silvery white hairs. Mesonotum dark brown; scutellum yellowish; postscutellum and abdomen nearly uniform dark brown. Legs a nearly uniform dark brown.

Taken at Nassau, N.Y. June 10, 1906.

Type Cecid. 194, N.Y. State Museum.

Dasyneura acerifolia n. sp.

Male. Length .75 mm. Antennae extending to the base of the abdomen, rather sparsely haired, light brown, 14 segments. Mesonotum and scutellum dark brown, abdomen brown. Legs mostly yellowish transparent, irregularly marked with dark brown, particularly the extremities of the femora and tarsi.

Taken on maple at Albany, N.Y. May 21, 1906.

Type Cecid. 72, N.Y. State Museum.

Dasyneura setosa n. sp.

Male. Length .75 mm. Antennae a little shorter than the body, thickly haired, dark brown, 14 segments. Face fuscous; mesonotum dark brown, submedian lines sparsely haired; scutellum reddish brown; postscutellum fuscous yellowish brown. Abdomen dark brown, sparsely yellow haired. Coxae and base of femora yellowish brown; other portions of legs dark brown.

Taken at Nassau, N.Y. August 10, 1906.

Type Cecid. 750, N.Y. State Museum.

Dasyneura virginica n. sp.

Male. Length .75 mm. Antennae extending to the 2d abdominal segment, sparsely clothed with fine hairs, dark brown, 15 segments. Mesonotum nearly uniform dark brown, lighter posteriorly, submedian lines sparsely clothed with fine hairs; scutellum variably fuscous, basally pale yellowish and with sparse setae apically; postscutellum dark brown. Abdomen dark brown with the 6th and 7th segments distinctly pale yellowish orange. Legs nearly uniform light brown, lighter ventrally; tarsi slightly darker.

Taken on witch-hazel at Albany, N.Y. June 12, 1906.

Type Cecid. 238b, N.Y. State Museum.

Dasyneura filicis n. sp.

Male. Length 1.5 mm. Antennae shorter than the body, dark brown, sparsely clothed with fine hairs, 15 segments. Mesonotum yellowish laterally, slaty brown dorsally and with long dark hairs. Scutellum yellowish; postscutellum yellowish and red; abdomen yellowish red with a fuscous spot basally. Coxae, femora and

tibiae yellowish transparent, thickly clothed with grayish hairs; tarsi dark brown.

Taken on fern or wild crane's-bill at Albany, N.Y. May 17, 1906.

Type Cecid. 43, N.Y. State Museum.

Dasyneura caricis n. sp.

Male. Length 1 mm. Antennae longer than the body, thickly clothed with long fuscous hairs, light brown, 16 segments. Face light brown; mesonotum dark brown with narrow submedian lines of fine setae; scutellum reddish brown with sparse apical setae; postscutellum yellowish. Abdomen yellowish brown, rather sparsely clothed with yellowish hairs; tip of genitalia dark brown; legs nearly uniform light brown; tarsi slightly darker.

Taken on Carex vulpinoidea at Albany, N.Y. June 4, 1906.

Type Cecid. 110, N.Y. State Museum.

Dasyneura quercina n. sp.

Male. Length. 1.5 mm. Antennae nearly as long as the body, sparsely haired, dark brown, 16 segments. Mesonotum dark brown, submedian lines sparsely clothed with fine hairs; scutellum reddish brown; postscutellum darker. Abdomen dark brown, sparsely clothed with yellowish hairs, reddish laterally. Legs light brown, lighter ventrally; tarsi slightly darker.

Taken on oak at Albany, N.Y. May 18, 1906.

Type Cecid. 47, N.Y. State Museum.

Dasyneura meliloti n. sp.

Male. Length 1 mm. Antennae a little longer than the body, sparsely haired, dark brown, 17 segments. Mesonotum dark brown, submedian lines sparsely haired; scutellum reddish brown; postscutellum slaty brown. Abdomen dark brown; membrane and pleurae yellowish. Genitalia dark brown; legs mostly dark brown.

Taken on sweet clover at Albany, N.Y. August 6, 1906.

Type Cecid. 744, N.Y. State Museum.

Dasyneura hamamelidis n. sp.

Male. Length .75 mm. Antennae extending to the 3d abdominal segment, sparsely clothed with fine hairs, dark brown, 18 segments. Mesonotum nearly uniform dark brown, somewhat

lighter posteriorly, submedian lines rather distinctly ornamented with pale hairs. Scutellum a variable fuscous, basally pale yellowish and with sparse setae apically; postscutellum dark brown. Abdomen nearly uniform dark brown; legs nearly uniform light brown, lighter ventrally; tarsi slightly darker.

Taken on witch-hazel at Albany, N.Y. June 12, 1906.

Type Cecid. 238a, N.Y. State Museum.

Dasyneura carbonaria n. sp.

Female. Length 1.25 mm. Antennae extending to the base of the abdomen, thickly haired, dark brown, 12 segments. Mesonotum dark brown, submedian lines indistinct; scutellum, postscutellum and abdomen deep carmine, the first two and the terminal abdominal segments tinged with yellowish. Legs a nearly uniform dark brown.

Bred from a blister Solidago gall apparently identical with that inhabited by Lasioptera carbonifera Felt. Taken at Albany, N.Y. July 14, 1906.

Type Cecid. 713, N.Y. State Museum.

Dasyneura borealis n. sp.

Female. Length 1 mm. Antennae extending to the middle of the abdomen, sparsely haired, dark brown, probably 14 segments. Mesonotum dark brown, lighter posteriorly, submedian lines distinctly yellowish; scutellum yellowish carmine; postscutellum and abdomen light yellowish red. Legs light brown, lighter ventrally; tarsi darker.

Taken on spruce at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 160, N.Y. State Museum.

Dasyneura denticulata n. sp.

Female. Length 1.5 mm. Antennae a little shorter than the body, sparsely haired, reddish brown, 14 segments. Face dark brown; mesonotum dark carmine; scutellum tinged with yellowish; postscutellum and abdomen dark carmine. Femora and tibiae yellowish brown; tarsi rather dark brown with suggestions of annulations.

Taken on spruce at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 156, N.Y. State Museum.

Dasyneura consobrina n. sp.

Female. Length 1.5 mm. Antennae extending to the 3d abdominal segment, sparsely haired, dark brown, 17 segments. Face and mesonotum dark brown, submedian lines pale, sparsely ornamented with fine setae. Scutellum and postscutellum bright orange, the former with sparse apical setae. Abdomen slightly fuscous orange, the incisures and pleurae bright orange, terminal segments yellowish, sparsely ornamented with fine pale setae. Coxae and femora pale straw; tibiae and tarsi rather dark brown, the former lighter ventrally.

Taken on white pine at Albany, N.Y. June 11, 1906.

Type Cecid. 215, N.Y. State Museum.

Asphondylia fulvopedalis n. sp.

Male. Length 2 mm. Antennae as long as the body, sparsely haired, light brown, fuscous basally, 14 segments. Mesonotum dark brown, submedian lines lighter; scutellum and postscutellum dark brown, abdomen a nearly uniform dark brown, the segments narrowly margined posteriorly with yellowish brown and sparsely clothed with fine yellowish hairs. Legs a nearly uniform fuscous straw, tarsal segments dull yellowish.

Taken on Solidago at Westfield, N.Y. July 11, 1906.

Type Cecid. 546, N.Y. State Museum.

Asphondylia transversa n. sp.

Male. Length 1.25 mm. Antennae extending to the 3d abdominal segment, naked, dark brown, 14 segments. Mesonotum very dark brown, submedian lines with setae; scutellum and postscutellum reddish brown, the former with apical setae. Abdomen dark brown, rather thickly clothed with yellowish setae. Legs yellowish red; tibiae and basal tarsal segments slightly lighter apically, the distal tarsal segments darker.

Taken at Albany, N.Y. May 18, 1906.

Type Cecid. 53, N.Y. State Museum.

Asphondylia multifila n. sp.

Male. Length 1.25 mm. Antennae extending to the base of the abdomen, sparsely haired, light brown, probably 13 or 14

segments. Face yellowish brown; mesonotum dark brown; scutellum reddish brown, postscutellum a little lighter. Abdomen a nearly uniform dark brown. Legs pale yellowish brown; tarsi a little darker.

Taken on white oak, Viburnum lentago and witch-hazel at Albany, N.Y. June 1, 1906.

Type Cecid. 95, N.Y. State Museum.

Asphondylia altifila n. sp.

Male. Length 1.5 mm. Antennae about as long as the body, thickly clothed with fine white hairs, dark brown, 14 segments. Mesonotum very dark brown, submedian lines paler, ornamented with sparse hairs; scutellum and postscutellum reddish brown. Abdomen dark reddish brown, rather thickly clothed with golden yellowish hairs, giving an appearance of a white lateral stripe. Legs a nearly uniform fuscous straw color; tarsi slightly darker.

Taken on blueberry at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 177, N.Y. State Museum.

Asphondylia carpini n. sp.

Female. Length .75 mm. Antennae extending to the middle of the abdomen, sparsely haired, dark brown, 14 segments. Face pale yellowish; mesonotum fuscous orange with submedian lines yellowish, sparsely ornamented with fine setae. Scutellum pale yellowish with sparse apical setae; postscutellum fuscous yellowish. Abdomen pale fuscous orange, rather sparsely clothed with fuscous setae. Legs fuscous, pale yellowish basally, tarsi a little darker.

Taken on ironwood or blue beech at Albany, N.Y. June 21, 1906.

Type Cecid. 346, N.Y. State Museum.

Asphondylia rubi n. sp.

Female. Length 1.5 mm. Antennae extending to the fourth abdominal segment, sparsely haired, dark brown, 14 segments. Mesonotum yellowish brown, submedian lines ornamented with long, yellowish setae. Scutellum reddish brown with sparse apical setae, postscutellum dark brown. Abdomen dark reddish with irregular dark brown markings on the dorsum of the 2d, 3d and 7th abdominal segments. Coxae mostly fuscous, anterior and mid femora mostly black, narrowly ringed with pale yellowish, posterior

femora with basal half pale yellowish, distal half fuscous; tibiae black with articulations yellowish or tinged with carmine, fore and mid tarsi black, the segments narrowly ringed basally with yellowish or yellowish white, posterior tarsi mostly yellowish with sparse, irregular, fuscous markings on the middle of the second segment, distal segments dark brown or fuscous.

Taken on high blackberry at Karner, N.Y. July 24, 1906.

Type Cecid. 685, N.Y. State Museum.

Rhopalomyia fusiformis n. sp.

Male. Length 2 mm. Antennae as long as the body, sparsely haired, yellowish gray, 19 segments. Mesonotum light brown, submedian lines yellowish, uniting posteriorly in a median yellowish area; scutellum fuscous yellowish with sparse apical setae; postscutellum yellowish brown. Abdomen dark fuscous yellowish, slightly darker basally, sparsely clothed with fine fuscous hairs. Genitalia very dark; legs a nearly uniform yellowish fuscous, distal tarsal segments somewhat variably tinged with pale carmine.

Bred from a ribbed green or reddish fusiform stemmed gall on leaf or stem of Solidago taken at Albany, N.Y. July 16, 1906.

Type Cecid. a1150, N.Y. State Museum.

Rhopalomyia pini n. sp.

Male. Length 2.5 mm. Antennae probably nearly as long as the body, rather thickly clothed with fine whitish hairs with variable light yellowish, 18 segments. Face dark brown; mesonotum reddish brown, the posterior median area lighter, the submedian lines with slaty colored hairs. Scutellum yellowish brown; postscutellum reddish brown. Abdomen yellowish brown, rather thickly clothed with slaty colored hairs. Legs a nearly uniform slaty brown.

Taken flying to a small white pine at Albany, N.Y. June 4, 1906.

Type Cecid. 116, N.Y. State Museum.

Rhopalomyia racemicola n. sp.

Male. Length 2.5 mm. Antennae as long as the body, sparsely white haired, fuscous yellowish, some of the terminal segments reddish, 18 or 20 segments. Mesonotum reddish brown, submedian lines yellowish, broad, rather thickly haired. Scutellum and post-

scutellum yellowish red; abdomen yellowish red, thickly haired, basal segments somewhat fuscous. Genitalia reddish; coxae fuscous yellowish; femora, tibiae and tarsi mostly a variable reddish.

Female. Length 2.5 mm. Antennae composed of 18 segments. Other characters about as in the male. Ovipositor when extended nearly as long as the body.

Bred from subglobular turnip-shaped bud galls on Solidago canadensis taken at Asheville, N.C. September 16, 1906.

Type Cecid. a1605, N.Y. State Museum.

Rhopalomyia major n. sp.

Male. Length 3 mm. Antennae longer than the body, rather thickly clothed with whorls of long whitish hairs, the body of the segments dark brown, 22–23 segments. Face yellowish brown; mesonotum a nearly uniform dark brown, submedian lines distinct with fuscous hairs and similar hairs on the lateral margin. Scutellum and postscutellum yellowish brown, the later fuscous laterally. Abdomen yellowish brown, rather thickly clothed with long fuscous hairs. Legs brownish black, the femero-tibio articulation tinged with reddish; tarsi dark brown.

Taken in trap lantern at Huguenot Park, S.I. May 31, 1906.

Type Cecid. 90, N.Y. State Museum.

Rhopalomyia acerifolia n. sp.

Female. Length 1.5 mm. Antennae not extending to the base of the abdomen, sparsely haired, light brown, 12 segments. Face yellowish; mesonotum yellowish brown; abdomen light yellowish, slightly fuscous at the extremities. Legs with femora and tibiae yellowish transparent; tarsi dark brown, the anterior banded with yellowish at the basal articulations, the posterior with the basal segment yellowish.

Taken in the vicinity of maple and other trees and vines at Albany, N.Y. May 1, 1906.

Type Cecid. 38, N.Y. State Museum.

Oligotrophus tiliaceus n. sp.

Male. Length .75 mm. Antennae hardly reaching to the base of the abdomen, sparsely haired, dark brown, 12 segments. Face reddish brown; mesonotum dark brown, submedian lines distinct

with brownish hairs. Scutellum reddish brown; postscutellum dark brown. Abdomen rather light brown with a yellowish cast laterally. Legs pale brown, lighter ventrally; tarsi a little darker.

Taken on basswood at Westfield, N.Y. May 23, 1906.

Type Cecid. 83, N. Y. State Museum.

Oligotrophus brevicornis n. sp.

Male. Length 1 mm. Antennae extending to the base of the abdomen, rather thickly haired, dark brown, yellowish basally, 12 segments. Face pale yellowish; mesonotum dark brown, submedian lines yellowish, sparsely ornamented with fine setae. Scutellum reddish orange; postscutellum dark brown. Abdomen a nearly uniform fuscous yellowish. Genitalia somewhat fuscous; legs a nearly uniform pale straw, the distal segments dark brown.

Taken on Solidago at Nassau, N.Y. June 14, 1906.

Type Cecid. 281, N.Y. State Museum.

Oligotrophus azaleae n. sp.

Male. Length 1.5 mm. Antennae not extending to the base of the abdomen, sparsely haired, light brown, 12 segments. Mesonotum dark brown with submedian lines of dark hairs. Scutellum reddish brown; postscutellum lighter; abdomen yellowish. Genitalia dark brown; femora and tibiae yellowish brown; tarsi brown tinged with reddish, the 2d tarsal segment more than twice the diameter of the following one, and as long as the 3d and 4th combined.

Taken on azalea at Albany, N.Y. May 18, 1906.

Type Cecid. 48, N.Y. State Museum.

Oligotrophus aceris n. sp.

Male. Length .75 mm. Antennae extending to the 3d abdominal segment, sparsely haired, dark brown, 13 segments. Face and mesonotum dark brown, the latter with distinct submedian lines of yellowish hairs. Scutellum reddish brown; postscutellum yellowish. Abdomen dark brown, sparsely clothed with yellowish hairs; legs reddish brown and yellowish, lighter ventrally, the deeper color at the extremities of the femora, distally on the tibiae and on the distal tarsal segments.

Taken on soft maple at Albany, N.Y. May 21, 1906.

Type Cecid. 66, N.Y. State Museum.

Oligotrophus rhoinus n. sp.

Male. Length .75 mm. Antennae a little longer than the body, sparsely haired, light brown, 13 or 14 segments. Mesonotum dark brown; scutellum light brown with sparse apical setae; postscutellum yellowish brown. Abdomen a somewhat variable yellowish brown, the anterior four segments irregularly marked near the median line with dark brown. Legs pale yellowish brown; tarsi darker.

Taken on sumac at Albany, N.Y. June 1, 1906.

Type Cecid. 94, N.Y. State Museum.

Oligotrophus thalactri n. sp.

Male. Length 1.5 mm. Antennae shorter than the body, sparsely haired, light brown, yellowish basally, 14 segments. Face yellowish; mesonotum light yellowish brown, submedian lines yellowish. Scutellum and postscutellum pale yellowish. Abdomen yellowish, sparsely clothed with light hairs. Coxae and basal portion of femora pale yellow, the remainder of the legs fuscous yellow.

Taken on early meadow rue at Albany, N.Y. June 1, 1906.

Type Cecid. 98, N.Y. State Museum.

Oligotrophus nodosus n. sp.

Male. Length 1.25 mm. Antennae extending to the middle of the abdomen, sparsely haired, dark brown, 14 segments. Face and mesonotum dark brown, abdomen reddish brown, dorsal incisures orange-brown. Legs yellow with reddish tints; tibiae and tarsi fuscous apically.

Taken on hornbeam or water beech near pine at Albany, N.Y. April 10, 1906.

Type Cecid. 10, N.Y. State Museum.

Oligotrophus tsugae n. sp.

Male. Length 1.5 mm. Antennae extending to the middle of the abdomen, rather thickly haired, dark reddish brown, 15 segments. Face dark reddish brown; mesonotum dark brown; scutellum, postscutellum and abdomen dark reddish. Legs a nearly uniform pale straw, lighter ventrally; tarsi darker.

Taken on hemlock at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 165, N.Y. State Museum.

Oligotrophus acerifolius n. sp.

Male. Length 1.5 mm. Antennae probably nearly as long as the body, sparsely clothed with long hairs, dark brown, 15 segments. Mesonotum dark brown; scutellum and postscutellum reddish brown, the basal abdominal segments dark brown, the others reddish, spotted with carmine. Genitalia dark brown; legs a variable brown, lighter ventrally; tarsi slightly darker.

Taken on maple or other trees and shrubs at Albany, N.Y. May 17, 1906.

Type Cecid. 33, N.Y. State Museum.

Oligotrophus pini n. sp.

Male. Length 2.5 mm. Antennae longer than the body sparsely clothed with long whitish hairs, dark brown, 16 segments. Head and mesonotum dark brown, the latter reddish posteriorly. Scutellum and postscutellum reddish. Abdomen yellowish red; coxae pale yellowish, femora light brown distally, lighter ventrally; tibiae and tarsi light brown, the former somewhat darker distally, the terminal tarsal segments somewhat darker.

Taken on pine at Albany, N.Y. May 26, 1906.

Type Cecid. 87, N.Y. State Museum.

Oligotrophus cornifolius n. sp.

Female. Length 1.25 mm. Antennae extending to the 3d abdominal segment, reddish brown, sparsely haired, 13 segments. Mesonotum dark brown, submedian lines and the median area posteriorly yellowish. Scutellum yellowish red with numerous yellowish apical setae; postscutellum yellowish. Abdomen yellowish with the basal segments tinged with red, the 1st slightly darker. Femora and tibiae yellowish tinged with red; tarsi somewhat darker, tinged with red, color somewhat variable.

Taken on Cornus florida at Albany, N.Y. May 18, 1906.

Type Cecid. 49c, N.Y. State Museum.

Oligotrophus caryae n. sp.

Female. Length .75 mm. Antennae extending to the middle of the abdomen, sparsely haired, light brown, 14 segments. Face yellowish; mesonotum black; scutellum and postscutellum reddish brown. Abdomen reddish brown with the segments margined

posteriorly with dark brown; terminal segment and ovipositor light yellow. Coxae and basal portion of femora, distal portion of femora, tibiae and tarsi a variable straw-brown.

Taken on hickory at Albany, N.Y. June 10, 1906.

Type Cecid. 102, N.Y. State Museum.

Hormomyia americana n. sp.

Male. Length 5 mm. Antennae as long as the body, sparsely clothed with fine hairs, fuscous yellowish, distal segments tinged with carmine, 25 segments. Face yellowish brown; mesonotum with the anterior median triangular area and the posterior sublateral irregular area dark brown, the median posterior area, the oblique sublateral anterior area, and the lateral area bordering the posterior submedian darker area, fuscous yellowish. Scutellum yellowish, postscutellum yellowish anteriorly and laterally, black on the median posterior area. Abdomen semitransparent, yellowish, each segment tinged with orange basally, the 6th and 7th segments being nearly suffused with orange. Genitalia reddish brown with fuscous markings. Coxae fuscous yellowish tinged with reddish; femora and tibiae fuscous yellowish; tarsi slightly darker tinged with reddish.

Taken in a trap lantern at Nassau, N.Y. May 31, 1906.

Type Cecid. 91, N.Y. State Museum.

Bremia filicis n. sp.

Male. Length 1.5 mm. Antennae twice the length of the body, rather thickly clothed with brown hairs, fuscous, 14 segments. Mesonotum fuscous; scutellum and postscutellum yellowish. Abdomen fuscous, clothed with long hairs. Legs long, slender, the anterior ones fuscous, the posterior gray.

Taken on fern at Karner, N.Y. June 26, 1906.

Type Cecid. 397, N.Y. State Museum.

Bremia hamamelidis n. sp.

Male. Length 1.15 mm. Antennae longer than the body, rather thickly clothed with long hairs, fuscous, 14 segments. Body fuscous, the abdomen clothed with pale hairs. Legs a nearly uniform pale straw color.

Taken on witch-hazel at Albany, N.Y. June 27, 1906.

Type Cecid. 401, N.Y. State Museum.

Bremia podophylli n. sp.

Male. Length 1.25 mm. Antennae probably twice as long as the body, thickly clothed with coarse hairs, dark brown, yellowish basally, 14 segments. Face pale yellowish; mesonotum dark brown, submedian lines distinct, yellowish, sparsely ornamented with pale setae. Scutellum light yellow with sparse apical setae; postscutellum light yellow; abdomen yellowish brown, rather thickly clothed with coarse setae, posterior margins of the segments and genitalia slightly fuscous. Legs a nearly uniform dark brown.

Taken on May-apple at Albany, N.Y. June 21, 1906.

Type Cecid. 352, N.Y. State Museum.

Dicrodiplosis podophylli n. sp.

Male. Length 2 mm. Antennae about as long as the body, thickly clothed with rather coarse hairs, rather dark brown, yellowish basally, 14 segments. Face yellowish; mesonotum dark brown with a median yellowish area posteriorly, submedian lines and scutellum yellowish, the latter with sparse apical setae; postscutellum yellowish. Abdomen reddish brown, basal segment slightly darker dorsally, each segment with a more or less distinct row of fuscous hairs along the posterior margin. Legs a nearly uniform pale brown, lighter ventrally; tarsi slightly darker.

Taken on May-apple or mandrake at Albany, N.Y. June 11, 1906.

Type Cecid. 207, N.Y. State Museum.

Mycodiplosis alternata n. sp.

Male. Length 1.5 mm. Antennae probably longer than the body, rather thickly clothed with fine hairs alternately yellowish and reddish, the larger swellings of the segments lighter, the smaller and the distal portions of the stem darker, 14 segments. Face and mesonotum dark brown, the latter with a narrow margined yellowish area posteriorly, submedian lines yellowish, sparsely clothed with fine setae. Scutellum yellowish reddish, dark brown laterally; postscutellum dark brown. Abdomen somewhat mottled with brown, darker laterally, the segments rather thickly clothed with fine yellowish hairs. Coxae yellowish transparent, femora pale yellowish with rather indistinct brownish annulations basally

and subapically; tibiae pale yellowish with more distinct fuscous annulations subbasally and apically. Tarsi with the first segment yellowish fuscous, the others yellowish orange or pale orange and with distinct fuscous annulations distally except the last segment which is entirely pale orange.

Taken on May-apple or mandrake at Albany, N.Y. June 11, 1906.

Type Cecid. 209, N.Y. State Museum.

Mycodiplosis lobata n. sp.

Male. Length 1 mm. Antennae about as long as the body, rather thickly clothed with fine hairs, light brown, yellowish basally, 14 segments. Face yellowish; mesonotum rather dark brown, yellowish posteriorly, submedian lines yellowish. Scutellum yellowish; postscutellum slaty brown. Abdomen rather dark salmon. Legs a nearly uniform dark straw; tarsi darker.

Taken on blueberry at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 176, N.Y. State Museum.

Mycodiplosis minuta n. sp.

Male. Length .4 mm. Antennae about one half longer than the body, rather thickly clothed with fine hairs, light brown, 14 segments. Mesonotum reddish brown; scutellum fuscous yellowish. Abdomen reddish brown with the 4th and 5th segments fuscous. Genitalia pale yellowish; legs a nearly uniform pale brown.

Taken at Nassau, N.Y. June 14, 1906.

Type Cecid. 290, N.Y. State Museum.

Mycodiplosis acerifolia n. sp.

Male. Length 2.5 mm. Antennae as long as the body, thickly clothed with fine hairs, light brown, 14 segments. Mesonotum reddish brown anteriorly, yellowish posteriorly; scutellum reddish brown; postscutellum yellowish. Abdomen yellowish transparent except for a conspicuous black spot on the basal abdominal, segments and a reddish tint ventrally at the posterior extremity. Legs fuscous yellowish, lighter ventrally.

Taken on maple or other trees and vines at Albany, N.Y. May 17, 1906.

Type Cecid. 37, N.Y. State Museum.

Mycodiplosis pini n. sp.

Male. Length .75 mm. Antennae one fourth longer than the body, thickly clothed with fine hairs, light brown, 14 segments. Face fuscous yellow; mesonotum fuscous brown, submedian lines pale yellowish. Scutellum light fuscous yellowish, postscutellum darker. Abdomen pale reddish brown with a golden fuscous spot on the 2d and 3d abdominal segments. Legs a nearly uniform straw-brown.

Taken on pine at Albany, N. Y June 21, 1906.

Type Cecid. 348, N.Y. State Museum.

Mycodiplosis coryli n. sp.

Male. Length 1.5 mm. Antennae nearly as long as the body, rather thickly clothed with fine hairs, light straw-brown, 14 segments. Face yellowish fuscous; mesonotum rather pale orange with a slightly dusky broad marginal stripe, the lateral margin of the submedian yellowish lines sparsely ornamented with pale setae. Scutellum pale orange; postscutellum slightly darker. Abdomen pale orange with the two basal segments and genitalia fuscous. Legs mostly a pale straw color, variably tinged with carmine.

Taken on hazel at Albany, N.Y. June 12, 1906.

Type Cecid. 237, N.Y. State Museum.

Mycodiplosis caricis n. sp.

Male. Length 1 mm. Antennae one half longer than the body, thickly clothed with long hairs, light brown, 14 segments. Face pale yellowish; mesonotum dark brown, submedian lines yellow, rather thickly ornamented with pale hairs. Scutellum light yellow with sparse apical setae; postscutellum orange-yellow. Abdomen dark fuscous yellow with the terminal segments pale orange, thickly clothed with pale setae. Genitalia fuscous yellow; legs a nearly uniform pale straw color.

Taken on sedge at Nassau, N.Y. June 15, 1906.

Type Cecid. 292, N.Y. State Museum.

Mycodiplosis cyanococci n. sp.

Male. Length 1 mm. Antennae fully one half longer than the body, rather thickly haired, light brown, 14 segments.

Face yellowish brown; mesonotum pale brown, submedian lines yellowish with sparse setae. Scutellum light yellowish bordered with carmine laterally; postscutellum and abdomen dark brown. Legs a nearly uniform pale straw with dark brown dorsally on the apex of the femora; tarsi slightly darker.

Taken on blueberry at Karner, N.Y. June 4, 1906.

Type Cecid. 136, N.Y. State Museum.

Mycodiplosis acerina n. sp.

Male. Length 1 mm. Antennae about as long as the body, thickly clothed with fine hairs, light brown, 14 segments. Face fuscous yellowish; mesonotum dark brown, submedian lines pale, rather thickly clothed with fuscous hairs; scutellum pale orange; postscutellum and abdomen a variable dark orange, the latter rather thickly clothed with fine fuscous hairs. Legs rather dark brown, lighter ventrally.

Taken on soft maple and on chokecherry beside soft maple at Albany, N.Y. June 15, 1906.

Type Cecid. 269, 270, N.Y. State Museum.

Mycodiplosis hudsoni n. sp.

Male. Length 1.5 mm. Antennae about twice as long as the body, thickly clothed with fine hairs, light brown, yellowish basally, 14 segments. Face pale yellowish; mesonotum dark reddish yellow, submedian lines sparsely ornamented with hairs; scutellum and postscutellum dark reddish; abdomen reddish carmine with indistinct fuscous markings at the base. Genitalia yellowish; coxae reddish anteriorly; femora and tibiae dark brown, yellowish ventrally, the middle and posterior femora and tibiae a nearly uniform pale yellowish; the femoro-tibio and tibio-tarsal articulations tinged with carmine; tarsi a variable yellowish brown.

Taken on soft maple at Albany, N.Y. June 10, 1906.

Type Cecid. 188, N.Y. State Museum.

Mycodiplosis emarginata n. sp.

Male. Length .75 mm. Antennae fully twice as long as the body, thickly clothed with fine hairs, pale brown, 14 segments. Face yellowish; mesonotum pale orange-yellow; scutellum, post-

scutellum and abdomen pale lemon-yellow. Legs a nearly uniform pale straw.

Taken at Nassau, N.Y. June 10, 1906.

Type Cecid. 191, N.Y. State Museum.

Mycodiplosis quercina n. sp.

Male. Length 1.5 mm. Antennae about one fifth longer than the body, thickly clothed with fine yellowish hairs, light brown, 14 segments. Face pale yellowish; mesonotum rather dark brown, yellowish posteriorly, submedian lines yellowish, sparsely ornamented with fine setae. Scutellum pale reddish yellow with numerous apical setae; postscutellum pale yellowish. Abdomen yellowish brown, rather thickly clothed with fine whitish setae; pleurae yellowish transparent; legs a nearly uniform pale brown.

Taken on white oak near soft maple and chokecherry at Albany, N.Y. June 15, 1906.

Type Cecid. 271, N.Y. State Museum.

Mycodiplosis viburni n. sp.

Male. Length 1.5 mm. Antennae nearly twice the length of the body, rather thickly clothed with brown hairs, light brown, 14 segments. Face dark brown, mouth parts pale yellowish; mesonotum rather dark brown with narrow lighter submedian lines. Scutellum light brown, clothed with long brownish apical setae; postscutellum yellowish. Abdomen light yellowish with the posterior margins of the segments dark brown and laterally about the middle of each segment a short dark brown curved line suggesting the posterior border of subsegments. Genitalia orange-yellow. Legs pale straw-yellow; femora and tibiae slightly fuscous distally; tarsi light brownish apically.

Taken on Viburnum lentago at Albany, N.Y. June 1, 1906.

Type Cecid. 89, N.Y. State Museum.

Mycodiplosis tsugae n. sp.

Male. Length 1 mm. Antennae twice as long as the body, thickly clothed with fine hairs, light brown, 14 segments. Face yellowish; mesonotum dark brown, lighter posteriorly, submedian lines yellowish; scutellum yellowish apically, rather thickly clothed

with fine hairs. Abdomen fuscous yellowish; legs rather dark brown, the ventral surface and base of femora paler.

Taken on hemlock at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 168a, N.Y. State Museum.

Contarinia balsamifera n. sp.

Male. Length 1 mm. Antennae about twice as long as the body, thickly haired, light brown, 14 segments. Face yellowish brown; mesonotum dark brown, the posterior median area lighter, submedian lines yellowish. Scutellum yellowish carmine, postscutellum and abdomen light yellowish red. Legs nearly uniform light brown, lighter ventrally, tarsi darker.

Taken on balsam at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 143, 144, N.Y. State Museum.

Contarinia sambucifolia n. sp.

Male. Length 1 mm. Antennae about twice the length of the body, thickly clothed with hairs, dark brown, yellowish basally, 14 segments. Face pale yellowish; mesonotum dark brown, lighter posteriorly, submedian lines yellowish. Scutellum yellowish apically, postscutellum and abdomen pale salmon. Legs nearly uniform pale straw, irregularly tinged with carmine at the articulations, tarsi brownish dorsally.

Taken on elder at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 153, N.Y. State Museum.

Contarinia filicis n. sp.

Male. Length 2.5 mm. Antennae longer than the body, thickly clothed with fine hairs, light brown, 14 segments. Mesonotum yellowish with a broad median area anteriorly, broad sublateral areas not quite extending to the anterior margin and scutellum slaty brown. Abdomen yellowish. Legs yellowish transparent ventrally, light brown dorsally, particularly the mid tibiae and tarsi.

Taken on ferns at Karner, N.Y. May 16, 1906.

Type Cecid. 20, N.Y. State Museum.

Contarinia trifolii n. sp.

Male. Length .75 mm. Antennae about twice the length of the body, thickly haired, light brown, 14 segments. Face yel-

lowish; mesonotum yellowish brown; scutellum, postscutellum and abdomen yellowish, the latter sparsely clothed with fuscous hairs. Legs variable yellowish transparent, tarsi slightly darker.

Taken on clover at Albany, N.Y. June 1, 1906.

Type Cecid. 108, N.Y. State Museum.

Contarinia ampelophila n. sp.

Male. Length .75 mm. Antennae nearly twice the length of the body, thickly clothed with fine hairs, pale brown, 14 segments. Face and mesonotum dark brown. Scutellum reddish brown, postscutellum darker; abdomen brownish red. Legs straw-yellow, tarsi a little darker apically.

Taken at Albany, N.Y. April 28, 1906, on grapevine.

Type Cecid. 9, N.Y. State Museum.

Contarinia caryae n. sp.

Male. Length .75 mm. Antennae longer than the body, thickly haired, pale, 14 segments. Entire insect yellowish with the exception of a dark spot on the dorsum of the abdomen. Legs pale yellowish, tarsi fuscous.

Taken at Albany, N.Y. June 19, 1906, on hickory.

Type Cecid. 332, N.Y. State Museum.

Contarinia viburni n. sp.

Male. Length 1 mm. Antennae about $\frac{1}{4}$ longer than the body, rather thickly clothed with dark hairs, pale straw, 14 segments. Face yellowish; mesonotum pale yellowish orange, slightly tinged with carmine dorsally. Scutellum and postscutellum pale orange. Abdomen bright orange, with a distinct, black or fuscous area basally. Legs pale straw, the articulations tinged with carmine.

Taken on maple-leaved arrowwood, Albany, N.Y. June 11, 1906.

Type Cecid. 210, N.Y. State Museum.

Cecidomyia albotarsa n. sp.

Male. Length 2 mm. Antennae a little longer than the body, sparsely haired, light brown, 14 segments. Mesonotum yellowish, thinly clothed with black hairs. Scutellum fuscous. Abdomen yellowish, the apex of the segments being clothed with long, black

hairs, the extremity yellowish. Legs thickly clothed with hairlike scales, yellowish basally; tibiae black, first joint of tarsi dark, the second joint of the anterior tarsi white, the remainder fuscous, posterior tarsi with all the joints but the first white.

Taken on hickory at Albany, N.Y. June 19, 1906

Type Cecid. 330, N.Y. State Museum.

Cecidomyia claytoniae n. sp.

Male. Length 1.5 mm. Antennae longer than the body, thickly clothed with fine hairs, light brown, 14 segments. Face reddish; mesonotum dark brown with paler sublateral lines and lighter on the median posterior area. Scutellum reddish, postscutellum and probably abdomen reddish brown, the latter sparsely clothed with yellowish hairs. Legs dark brown, lighter ventrally, tarsi straw-yellow.

Taken on Claytonia virginica at Albany, N.Y. May 18, 1906.

Type Cecid. 46, N.Y. State Museum.

Cecidomyia fragariae n. sp.

Male. Length .75 mm. Antennae about twice as long as the body, rather thickly clothed with fine hairs, a light straw-brown, 14 segments. Mesonotum dark carmine, submedian lines yellowish. Scutellum tinged with carmine, postscutellum yellowish. Abdomen pale yellowish, with a median dorsal orange spot on the second and third segments. Legs a nearly uniform pale straw, terminal tarsal segments light brown.

Taken on strawberry at Albany, N.Y. June 18, 1906.

Type Cecid. 328 N.Y. State Museum.

Cecidomyia orbiculata n. sp.

Male. Length 3 mm. Antennae about as long as the body, rather thickly clothed with fine hairs, dark brown, 14 segments. Face dark yellowish brown; mesonotum dark brown, yellowish red laterally, submedian lines narrow, yellowish, sparsely ornamented with pale hairs. Scutellum rather dark red with fuscous apical hairs, postscutellum darker. Abdomen fuscous brown dorsally, the sclerites slightly darker than the pleurae and incisures, each

segment posteriorly with a row of stout, light brown hairs. Legs nearly uniform dark straw, lighter ventrally.

Taken on common locust at Albany, N.Y. June 10, 1906.

Type Cecid. 180, N.Y. State Museum.

Cecidomyia photophila n. sp.

Male. Length 1 mm. Antennae fully ½ longer than the body, thickly clothed with coarse setae, dark brown, 14 segments. Mesonotum yellowish brown, submedian lines indistinct, sparsely clothed with fine setae. Scutellum reddish brown with sparse apical setae, postscutellum dark brown. Abdomen bright carmine, rather thickly clothed with fine, yellowish setae. Legs a nearly uniform reddish brown.

Taken in trap lantern at Newport, N.Y. June 16, 1906.

Type Cecid. 323, N.Y. State Museum.

Cecidomyia recurvata n. sp.

Male. Length 1 mm. Antennae probably ¼ longer than the body, sparsely clothed with fine hairs, pale straw, 14 segments. Face yellowish, thorax pale yellowish. Abdomen pale yellowish with a reddish tint basally and apically on the ventral surface. Legs pale yellowish white, extreme tips of the tarsi slightly dusky.

Taken in trap lantern at Poughkeepsie, N.Y. June 21, 1906.

Type Cecid. 361, N.Y. State Museum.

Cecidomyia emarginata n. sp.

Male. Length .75 mm. Antennae longer than the body, thickly clothed with fine hairs, dark brown, 14 segments. Face yellowish; mesonotum pale reddish, the anterior, median and sublateral posterior areas slightly darker. Abdomen yellowish red with irregular, carmine markings. Legs light brown, lighter ventrally, tarsi slightly darker.

Taken on maple and other vines and shrubs at Albany, N. Y. May 17, 1906.

Type Cecid. 34, N.Y. State Museum.

Cecidomyia obesa n. sp.

Male. Length 1.5 mm. Antennae as long as the body, rather thickly clothed with fine hairs, bright carmine, 14 segments. Face

pale yellowish; mesonotum and scutellum dark carmine, postscutellum fuscous. Abdomen dark carmine. Legs nearly uniform pale straw, tarsi slightly darker.

Taken on hemlock at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 167, N.Y. State Museum.

Cecidomyia carpini n. sp.

Male. Length 1.25 mm. Antennae about ¼ longer than the body, thickly clothed with fine hairs, light brown, 14 segments. Basal antennal segments and face fuscous yellowish; mesonotum dark brown or black with pale submedian lines, sparsely clothed with fine setae. Scutellum dark orange, sparsely clothed with yellowish setae, postscutellum fuscous orange. Abdomen reddish brown with the pleurae and terminal segments dark yellowish, rather thickly clothed with yellowish setae. Legs brownish, yellowish red basally, lighter ventrally.

Taken on ironwood or blue beech at Albany, N.Y. June 21, 1906.

Type Cecid. 347, N.Y. State Museum.

Cecidomyia angulata n. sp.

Male. Length .75 mm. Antennae longer than the body, thickly clothed with fine hairs, pale yellowish, 14 segments. Entire insect, with the exception of a dark spot on the dorsum of the body, is yellowish. Legs rather thickly clothed with narrow scales, a nearly uniform pale straw.

Taken on hickory at Albany, N.Y. June 19, 1906.

Type Cecid. 332, N.Y. State Museum.

Cecidomyia hudsoni n. sp.

Male. Length 2 mm. Antennae a little longer than the body, rather sparsely haired, dark brown, 14 segments. Mesonotum light brown with an indistinct yellowish, median line and a similar color on the humeri, submedian lines sparsely ornamented with long, yellowish setae; posterior margin of mesonotum slaty brown. Scutellum bluish slate, the apex sparsely ornamented with long, yellowish setae. Abdomen dark or reddish brown, rather thickly clothed with yellowish hairs. Legs brownish yellow.

Taken on red cedar at Poughkeepsie, N.Y. April 19, 1906.

Type Cecid. 1, N.Y. State Museum.

Cecidomyia lobata n. sp.

Male. Length 1 mm. Antennae ½ longer than the body, sparsely haired, light brown, 14 segments. Face yellowish brown; mesonotum a variable reddish brown, lighter posteriorly, submedian lines yellowish. Scutellum yellowish, postscutellum and abdomen pale yellowish brown. Legs pale brown, tarsi slightly darker.

Taken on white clover at Karner, N.Y. June 4, 1906.

Type Cecid. 132 N.Y. State Museum.

Cecidomyia urticae n. sp.

Male. Length 1.25 mm. Antennae ½ longer than the body, rather thickly clothed with fine hairs, pale brown, 14 segments. Face pale yellowish; mesonotum dark reddish brown with distinct submedian yellowish lines, posterior median area yellowish. Scutellum yellowish with sparse apical setae, postscutellum yellowish. Abdomen pale yellow with an irregular, reddish spot on the 2d and 3d abdominal segments. Legs a nearly uniform pale fuscous straw color.

Taken on nettle at Albany, N.Y. June 4, 1906.

Type Cecid. 123, N.Y. State Museum.

Cecidomyia filicis n. sp.

Male. Length 1 mm. Antennae longer than the body, rather sparsely haired, dark brown, 14 segments. Mesonotum dark brown. Scutellum and postscutellum lighter. Abdomen yellowish brown, vestiture scarcely perceptible. Legs light brown, paler at the articulations.

Taken on ferns at Karner, N.Y. June 4, 1906.

Type Cecid. 139, N.Y. State Museum.

Cecidomyia acerina n. sp.

Male. Length 1 mm. Antennae twice the length of the body, thickly clothed with long hairs, dark brown, 14 segments. Face yellowish brown; mesonotum reddish brown, probably with lighter submedian lines. Scutellum reddish. Abdomen yellowish brown with a distinct fuscous spot dorsally on the second and third abdominal segments. Legs pale straw color basally, darker apically, specially the tarsi.

Taken on maple at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 149, N.Y. State Museum.

Cecidomyia toxicodendri n. sp.

Male. Length .75 mm. Antennae about ½ longer than the body, thickly clothed with fine setae, light brown, 14 segments. Face fuscous yellowish; mesonotum reddish brown, submedian lines pale yellowish, sparsely ornamented with fine setae. Scutellum and pleurae fuscous yellow, postscutellum yellowish. Abdomen a nearly uniform fuscous brown, rather thickly clothed with fine setae. Coxae and femora pale yellowish, tibiae and tarsi pale brown, tarsi slightly darker.

Taken on poison ivy at Nassau, N.Y. June 14, 1906.

Type Cecid. 263, N.Y. State Museum.

Cecidomyia flavoscuta n. sp.

Male. Length .75 mm. Antennae longer than the body, rather thickly haired, dark brown, 14 segments. Face reddish brown; mesonotum dark brown with distinct submedian lines of pale setae. Scutellum yellowish with numerous yellowish hairs apically, postscutellum yellowish. Abdomen dark brown. Legs mostly yellowish transparent with reddish tints at the extremities of femora, tibiae and tarsi.

Taken at Albany, N.Y. May 21, 1906.

Type Cecid. 76, N.Y. State Museum.

Cecidomyia quercina n. sp.

Male. Length .5 mm. Antennae nearly as long as the body, thickly clothed with fine hairs, yellowish gray, 14 segments. Face pale yellowish; mesonotum dark brown, submedian lines yellowish, sparsely ornamented with fine setae. Scutellum pale yellowish, postscutellum yellowish brown. Abdomen pale orange with a large fuscous median spot basally. Legs pale straw color, the annulations variably marked with carmine, distal tarsal segments fuscous.

Taken on swamp white oak at Albany, N.Y. June 21, 1906.

Type Cecid. 342, N.Y. State Museum.

Cecidomyia hicoriae n. sp.

Male. Length .75 mm. Antennae fully twice as long as the body, thickly clothed with fine hairs, light brown, 14 segments.

Face dark fuscous; mesonotum dark brown. Scutellum reddish brown, postscutellum darker. Abdomen pale yellowish with dark brown mesially on the basal segment. Legs a nearly uniform pale reddish straw color, tarsi slightly darker.

Taken on hickory at Nassau, N.Y. June 14, 1906.

Type Cecid. 261, N.Y. State Museum.

Cecidomyia fraxini n. sp.

Male. Length 1 mm. Antennae nearly twice the length of the body, sparsely haired, light brown, 14 segments. Mesonotum nearly uniform dark brown, submedian lines yellowish. Scutellum yellowish laterally, dark orange apically, postscutellum a little darker. Abdomen dark reddish, slightly lighter dorsally on the second and third abdominal segments. Legs nearly uniform dark brown, lighter ventrally.

Taken on ash at Albany, N.Y. June 10, 1906.

Type Cecid. 179, N.Y. State Museum.

Cecidomyia flavomarginata n. sp.

Male. Length .75 mm. Antennae ½ longer than the body, thickly haired, light brown, 14 segments. Mesonotum yellowish brown, the broad median area thickly clothed with yellowish hairs. Scutellum reddish, the postscutellum probably concolorous. Abdomen light brown, anterior segments margined posteriorly with yellowish, posterior segments reddish. Coxae yellowish transparent tinged with reddish apically, femora yellowish transparent, tibiae slightly darker, tarsi light brown.

Taken on clover at Albany, N.Y. June 1, 1906.

Type Cecid. 109, N.Y. State Museum.

Cecidomyia triangularis n. sp.

Male. Length 1 mm. Antennae longer than the body, sparsely clothed with coarse hairs, brown, 14 segments. Face yellowish; mesonotum brownish yellow, submedian lines obscure. Scutellum reddish. Abdomen brownish yellow, ovipositor pale. Coxae white, femora brown above, paler beneath, tibiae a little paler than the femora, tarsi brown.

Taken on Solidago at Lebanon, N.Y. August 26, 1906.

Type Cecid. 763, N.Y. State Museum.

Cecidomyia excavata n. sp.

Male. Length .75 mm. Antennae longer than the body, rather thickly clothed with short, dark brown setae, pale straw color, 14 segments. Face yellowish white; mesonotum reddish brown with distinct submedian yellowish lines sparsely clothed with setae. Scutellum yellow, tipped with carmine, postscutellum yellow. Abdomen pale, reddish yellow with slightly fuscous areas dorsally on the second and third segments. Legs variably brown tinged with reddish, lighter ventrally, the anterior and mid tarsi distinctly darker than the posterior.

Taken on soft maple at Albany, N.Y. May 21, 1906.

Type Cecid. 65, N.Y. State Museum.

Cecidomyia carolinae n. sp.

Male. Length 1 mm. Antennae $\frac{1}{4}$ longer than the body, thickly haired, fuscous yellowish, lighter basally, 14 segments. Face fuscous yellowish; mesonotum dark brown, submedian lines indistinct. Scutellum black or very dark brown, postscutellum dark brown. Abdomen pale yellowish, basal segments dark brown or black dorsally, the terminal segments shaded with orange. Legs a variable light fuscous yellow basally, basal tarsal segments somewhat darker than the distal ones.

Bred October 5, 1906, from gall on Solidago canadensis taken at Asheville, N.C. September 17, 1906.

Type Cecid. a1636, N.Y. State Museum.

Cecidomyia tsugae n. sp.

Male. Length 1 mm. Antennae twice as long as the body, thickly clothed with fine hairs, light brown, yellowish basally, 14 segments. Face yellowish; mesonotum dark brown, lighter posteriorly, submedian lines yellowish. Scutellum yellowish apically, rather thickly clothed with fine hairs. Abdomen fuscous yellowish. Legs rather dark brown, ventral surface and base of femora paler.

Taken on hemlock at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 168b, N.Y. State Museum.

Cecidomyia incisa n. sp.

Male. Length .75 mm. Antennae half as long as the body, rather thickly clothed with setae, light brown, 14 segments. Mesonotum dark brown; scutellum orange-brown, postscutellum darker. Abdomen orange-brown, somewhat darker dorsally on the 2d, 3d and 4th abdominal segments. Legs variable yellowish brown and dark brown; posterior coxae reddish, femora and tibiae light brown, slightly darker distally, tarsi rather dark brown.

Taken on soft maple at Albany, N.Y. May 21, 1906.

Type Cecid. 67, N.Y. State Museum.

Cecidomyia subtruncata n. sp.

Male. Length 1 mm. Antennae ½ longer than the body, thickly haired, dark brown, fuscous yellowish basally, 14 segments. Face fuscous yellowish; mesonotum dark brown, submedian lines yellow, uniting posteriorly in a median yellowish area. Scutellum dark red, postscutellum yellowish. Abdomen dark red, the segments margined posteriorly with fuscous, sparsely clothed with pale setae. Coxae and basal portion of femora pale yellowish, remainder of femora, tibiae and basal segment of tarsi fuscous brown, the three distal segments yellowish, variably tinged with carmine.

Taken on goldenrod or Aster at Albany, N.Y. July 6, 1906.

Type Cecid. 506, N.Y. State Museum.

Cecidomyia eupatorii n. sp.

Male. Length 1 mm. Antennae fully ½ longer than the body, thickly clothed with long hairs, light brown, 14 segments. Face yellowish; mesonotum light olive-brown, submedian lines sparsely clothed with pale yellowish setae. Scutellum pale yellowish, postscutellum dark brown. Abdomen yellowish orange, slightly darker posteriorly, basal segments irregularly fuscous. Legs mostly a variable fuscous yellow, the articulations and terminal tarsal segments lighter.

Bred September 12, 1906, from galls taken on Eupatorium ageratoides at South bay, Glen lake, Lake Champlain, August 21, 1906.

Type Cecid. a1280, N.Y. State Museum.

Cecidomyia juniperina n. sp.

Male. Length 1 mm. Antennae fully ⅓ longer than the body, thickly haired, light brown, yellowish basally, 14 segments. Mesonotum dark brown, submedian lines sparsely haired. Scutellum yellowish orange, postscutellum fuscous reddish. Abdomen reddish salmon, the basal four segments dark red. Coxae and femora fuscous transparent, tibiae and tarsi fuscous brown, distal segments darker.

Taken at Nassau, N.Y. August 7, 1906.

Type Cecid. 746, N.Y. State Museum.

Cecidomyia karnerensis n. sp.

Male. Length .75 mm. Antennae ½ longer than the body, thickly clothed with fine hairs, light brown, 14 segments. Mesonotum dark brown with a silvery luster. Scutellum reddish, postscutellum dark brown. Abdomen reddish yellow, sparsely ornamented with rather coarse hairs. Legs semitransparent, yellowish brown, tarsi variably reddish, light or dark brown.

Taken at Karner, N.Y. May 16, 1906.

Type Cecid. 27, N.Y. State Museum.

Cecidomyia rugosa n. sp.

Male. Length .75 mm. Antennae twice the length of the body, thickly haired, light brown, 14 segments. Mesonotum dark brown, submedian lines sparsely haired. Scutellum yellowish red apically, postscutellum dark brown. Abdomen reddish brown, thickly haired, basal segments darker. Legs nearly uniform light brown.

Bred August 9, 1906, from galls collected on Solidago at Albany, N.Y. July 15, 1906.

Type Cecid. 650c, N.Y. State Museum.

Cecidomyia caryae n. sp.

Male. Length 2.5 mm. Antennae ¼ longer than the body, sparsely haired, light brown, 14 segments. Mesonotum brown, yellowish at the apex. Scutellum reddish. Abdomen yellow, with the posterior margin of each segment and a short transverse an-

terior line laterally, dark brown. Legs yellow at the base, tibiae and tarsi brown.

Taken on hickory at Albany, N.Y. June 19, 1906.

Type Cecid. 331, N.Y. State Museum.

Cecidomyia asteris n. sp.

Male. Length 1.25 mm. Antennae longer than the body, thickly haired, light brown, fuscous yellowish basally, 14 segments. Face fuscous yellowish; mesonotum dark brown, submedian lines distinct. Scutellum yellowish, reddish apically, postscutellum yellowish. Abdomen dull yellowish, reddish apically and with a fuscous basal spot. Legs fuscous straw.

Taken on aster at Albany, N.Y. June 17, 1906.

Type Cecid. 615, N.Y. State Museum.

Cecidomyia coryli n. sp.

Male. Length 1.5 mm. Antennae a little longer than the body, rather thickly clothed with fine setae, light brown, 14 segments. Face sooty yellow; mesonotum dark brown, dark reddish laterally, submedian lines yellowish, ornamented with fine setae. Scutellum reddish basally, slightly fuscous apically, with sparse apical setae, postscutellum dark yellowish. Abdomen pale yellowish orange, sparsely clothed with fine yellowish hairs, each segment narrowly margined with fuscous posteriorly and with short, dark, transverse lines on each side just behind the middle. Coxae and basal portion of femora pale straw-yellow, the other parts of the legs nearly uniform sooty yellowish or brownish.

Taken on hazel at Albany, N.Y. June 11, 1906.

Type Cecid. 216, N.Y. State Museum.

Cecidomyia rubroscuta n. sp.

Male. Length .75 mm. Antennae about twice the length of the body, thickly clothed with light brown hairs, yellowish brown, 14 segments. Face dark brown; mesonotum with the anterior median and posterior sublateral lobes dark brown, the intermediate spaces lighter. Scutellum reddish brown, postscutellum dark brown. Abdomen rather dark brown, sparsely clothed with yellowish hairs.

Legs slightly variable, pale straw color, femora somewhat darker apically.

Taken on ash at Albany, N.Y. June 1, 1906.

Type Cecid. 93, N.Y. State Museum.

Cecidomyia acernea n. sp.

Male. Length 1.5 mm. Antennae ¼ longer than the body, rather thickly clothed with fine setae, light brown, yellowish basally, 14 segments. Face pale yellowish; mesonotum dark brown, submedian lines pale yellowish, sparsely ornamented with fine setae. Scutellum somewhat fuscous yellowish with sparse apical setae, postscutellum and abdomen pale orange, with the latter slightly tinged dorsally with fuscous and rather sparsely clothed with fine, whitish hairs. Legs nearly uniform pale straw, tarsi somewhat darker.

Taken on soft maple at Nassau, N.Y. June 14, 1906.

Type Cecid. 267, N.Y. State Museum.

Cecidomyia cincta n. sp.

Male. Length 1 mm. Antennae a little longer than the body, rather thickly clothed with fine hairs, dark brown, 14 segments. Mesonotum nearly uniform dark brown. Scutellum dark reddish, postscutellum yellowish brown. Abdomen with the basal segments yellowish brown, the third and fourth black, fifth and sixth pale orange, terminal segments black. Legs nearly uniform pale straw.

Taken at Albany, N.Y. June 13, 1906.

Type Cecid. 285, N.Y. State Museum.

Cecidomyia sylvestris n. sp.

Male. Length 1.25 mm. Antennae ¼ longer than the body, thickly haired, brown, 14 segments. Mesonotum a variable yellowish and brown, submedian lines indistinct. Scutellum and postscutellum yellowish. Abdomen dark carmine, a fuscous spot near the middle. Femora and tibiae pale fuscous distally, tarsi fuscous.

Taken at Davidson's River, N.C. September 26, 1906.

Type Cecid. a1630, N.Y. State Museum.

Dirhiza caryae n. sp.

Female. Length 2.5 mm. Antennae extending to the base of the abdomen, sparsely haired, reddish brown, 14 segments.

Face reddish; mesonotum dark brown, yellowish red laterally, the posterior median area yellowish, submedian lines yellowish, rather indistinct with sparse yellow setae. Scutellum reddish; postscutellum brown, yellowish laterally. Abdomen yellowish with a series of nearly circular dark brown median spots on the 2d, 4th, 5th and 6th abdominal segments; ventral surface reddish brown. Legs pale yellowish, irregularly tinged with reddish.

Taken on hickory at Albany, N.Y. May 20, 1906.

Type Cecid. 58, N.Y. State Museum.

Dirhiza hamata n. sp.

Female. Length 2.5 mm. Antennae extending to the base of the abdomen, rather thickly haired, dark reddish brown, 13 segments. Head dark brown or black; mesonotum black, shining, with a few scattered setae laterally. Scutellum and postscutellum dark brown. Abdomen dark brown, somewhat reddish at the sides. Legs black; tarsi with the 1st joint and basal $\frac{4}{5}$ of the 2d dark brown, the remainder white, the 3d and 4th segments white, 5th slightly infuscated.

Taken at Albany, N.Y. June 8, 1906.

Type Cecid. 142, N.Y. State Museum.

Porricondyla ampelophila n. sp.

Male. Length 1.5 mm. Antennae a little shorter than the body, sparsely haired, dark brown, fuscous yellowish basally, 14 segments. Face fuscous yellowish; mesonotum nearly uniform dark brown. Scutellum dark reddish brown, postscutellum dark brown. Abdomen dark yellowish brown with yellowish on the dorsum of the fourth segment, sparsely clothed with dark hairs. Legs a pale fuscous yellowish, tarsi slightly darker.

Taken on Virginia creeper at Albany, N.Y. July 3, 1906.

Type Cecid. 450, N.Y. State Museum.

Porricondyla pini n. sp.

Male. Length 1.5 mm. Antennae probably longer than the body, rather thickly clothed with coarse hairs, light brown, 15 segments. Face pale yellowish; mesonotum dark brown, submedian lines with yellowish hairs. Scutellum pale orange with sparse apical setae; postscutellum slightly darker; abdomen rather dark

brown. Genitalia pale orange and rather thickly clothed with yellowish hairs. Legs a nearly uniform pale straw color.

Taken on white pine at Albany, N.Y. June 10, 1906.

Type Cecid. 221, N.Y. State Museum.

Porricondyla pinea n. sp.

Male. Length 2 mm. Antennae longer than the body, sparsely haired, yellowish brown, basally yellowish, 15 or 16 segments. Mesonotum light brown, yellowish posteriorly, submedian lines broad, yellowish, scutellum light reddish, postscutellum yellowish. Abdomen pale salmon, the color slightly deeper on the basal and antipenultimate segments. Genitalia fuscous yellowish; legs a nearly uniform light fuscous yellowish.

Taken at Davidson's River, N.C. September 24, 1906.

Type Cecid. a1622, N.Y. State Museum,

Porricondyla carolinae n. sp.

Male. Length 1.3 mm. Antennae ½ longer than the body, sparsely haired, yellowish brown, yellowish basally, 16 segments. Face yellowish; mesonotum fuscous yellowish, submedian lines yellowish, the area between the submedian lines distinctly lighter than the sublateral areas. Scutellum reddish brown, postscutellum yellowish; abdomen fuscous yellow. Genitalia slightly fuscous; legs a nearly uniform yellowish fuscous.

Taken at Davidson's River, N.C. September 26, 1906.

Type Cecid. a1624, N.Y. State Museum.

Porricondyla trifolii n. sp.

Male. Length .75 mm. Antennae almost three times as long as the body, sparsely haired, dark brown, at least 14 and probably 16 segments. Face fuscous; mesonotum dark brown, submedian lines indistinct; scutellum pale orange; postscutellum and abdomen dark brown. Genitalia slightly fuscous, sparsely clothed with yellowish hairs. Legs a nearly uniform dark brown.

Taken on white clover at Albany, N.Y. July 3, 1906.

Type Cecid. 455, N.Y. State Museum.

Porricondyla diervillae n. sp.

Male. Length 1 mm. Antennae ½ longer than the body, sparsely haired, dark brown, yellowish basally, 16 segments. Face yel-

lowish; mesonotum reddish, submedian lines yellow. Scutellum, postscutellum and abdomen pale yellowish. Legs a nearly uniform dark brown.

Taken on bush honeysuckle at Karner, N.Y. July 5, 1906.

Type Cecid. 485, N.Y. State Museum.

Porricondyla hamata n. sp.

Male. Length 3 mm. Antennae $\frac{1}{4}$ longer than the body, sparsely clothed with long hairs, fuscous yellowish, probably 16 segments. Face yellowish, the mouth parts carmine; mesonotum dark brown, submedian lines narrow, yellowish. Scutellum pale yellowish, postscutellum yellowish; abdomen fuscous yellow, the segments margined posteriorly with fuscous. Genitalia light fuscous. Legs fuscous yellowish, the last tarsal segments of the 1st and 2d pair of legs and the 2 distal segments of the 3d pair of legs yellowish.

Taken at Davidson's River, N.C. September 26, 1906.

Type Cecid. a1626, N.Y. State Museum.

Porricondyla flava n. sp.

Male. Length 1 mm. Antennae a little longer than the body, sparsely haired, dark brown, at least 12 and probably 14 or more segments. Face pale yellowish; mesonotum pale brownish apically, yellowish posteriorly. Scutellum, postscutellum and abdomen light yellowish. Legs a nearly uniform pale straw color.

Taken on soft maple at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 151, N.Y. State Museum.

Porricondyla graminis n. sp.

Female. Length 1 mm. Antennae about as long as the body, sparsely haired, dark brown, 12 segments. Mesonotum dark brown; scutellum deep carmine; postscutellum reddish. Abdomen reddish brown, lighter distally. Legs a nearly uniform pale brown.

Taken on quack grass at Albany, N.Y. July 14, 1906.

Type Cecid. 570, N. Y. State Museum.

Porricondyla sylvestris n. sp.

Female. Length 1 mm. Antennae extending to the middle of the abdomen, sparsely haired, dark brown, 12 segments. Mesonotum dark brown, submedian lines yellowish. Scutellum and post-

scutellum dark brown; abdomen yellowish; legs a nearly uniform pale straw color.

Taken on low plants in balsam woods at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 175, N. Y. State Museum.

Porricondyla quercina n. sp.

Female. Length 1.5 mm. Antennae as long as the body, rather thickly clothed with coarse hairs, dark brown, 12 segments. Face fuscous; mesonotum dark brown with the sublateral and median posterior areas yellow. Scutellum pale reddish, postscutellum yellow. Abdomen dark brown; coxae and base of femora yellowish, distal portion of femora yellowish brown; tibiae and tarsi dark brown.

Taken on scrub oak at Karner, N.Y. May 19, 1906.

Type Cecid. 62, N.Y. State Museum.

Porricondyla altifila n. sp.

Female. Length 1.25 mm. Antennae as long as the body, sparsely haired, fuscous, 12 segments. Mesonotum and scutellum reddish yellow, the latter with a fuscous line at the apex; postscutellum and abdomen yellowish. Legs with the anterior ones fuscous at the base; tarsi paler, posterior legs pale.

Taken on skunk cabbage at Karner, N.Y. June 26, 1906.

Type Cecid. 398, N.Y. State Museum.

Porricondyla borealis n. sp.

Female. Length 1.5 mm. Antennae nearly as long as the body, sparsely haired, dark brown, yellowish basally, 14 segments. Face yellowish; mesonotum reddish brown, submedian lines yellowish; scutellum yellowish apically, postscutellum and abdomen dark reddish brown. Legs a nearly uniform dark brown; tibiae and tarsi slightly darker.

Taken on spruce at Lake Clear, N.Y. June 7, 1906.

Type Cecid. 155, N.Y. State Museum.

Asynapta cerasi n. sp.

Male. Length 1.5 mm. Antennae about as long as the body, rather thickly clothed with whitish hairs, light brown, yellowish

basally, 23 segments. Face pale yellowish; mesonotum rather dark brown, the posterior median area yellowish, submedian lines narrow, distinctly yellowish, irregularly margined with coarse setae; scutellum pale orange-yellow with sparse apical setae; postscutellum concolorous. Abdomen somewhat variably orange yellowish; genitalia slightly fuscous; legs a rather dark straw-brown, lighter ventrally.

Taken on cherry at Albany, N.Y. June 12, 1906.

Type Cecid. 236, N.Y. State Museum.

Asynapta photophila n. sp.

Male. Length 2 mm. Antennae $\frac{1}{4}$ longer than the body, sparsely haired, light brown annulate with yellow, 28 segments. Face yellowish; mesonotum reddish brown with distinct lighter submedian lines ornamented with yellowish hairs; posterior median area yellowish. Scutellum reddish brown with sparse apical hairs; postscutellum and abdomen a slightly variable reddish brown. Legs long, a nearly uniform pale straw color.

Taken in trap lantern at Nassau, N.Y. June 3, 1906.

Type Cecid. 119, N.Y. State Museum.

Winnertzia furcata n. sp.

Male. Length 2 mm. Antennae as long as the body, sparsely clothed with whorls of long hairs, fuscous, 16 segments. Head testaceous; mesonotum dark brown, sparsely clothed with long hairs. Scutellum and postscutellum testaceous; abdomen testaceous with the lateral margins darker and sparsely clothed with short pale hairs. Legs testaceous at base, becoming dark brown at the top, the 2 basal tarsal segments of the anterior legs brown, the others yellow. The basal and most of the second tarsal segment of the posterior legs brown, the tip of the 2d and the other remaining segments white; articulations pale straw.

Taken at Nassau, N.Y. June 21, 1906.

Type Cecid. 336, N.Y. State Museum.

Winnertzia carpini n. sp.

Male. Length 1 mm. Antennae about as long as the body, thickly haired, dark brown, 13 segments. Mesonotum yellowish brown, rather thickly clothed along the broad median area with fine

yellowish hairs. Scutellum yellowish with sparse apical hairs, postscutellum a little darker. Abdomen yellowish brown, the basal segments and genitalia darker. Coxae and femora yellowish transparent, the latter slightly fuscous apically. Tibiae and tarsi pale yellowish brown.

Taken on ironwood or blue beech at Albany, N.Y. June 1, 1906.

Type Cecid. 106, N.Y. State Museum.

Winnertzia solidaginis n. sp.

Male. Length .75 mm. Antennae probably as long as the body, sparsely haired, dark brown, probably at least 14 segments. Mesonotum dark brown, submedian lines with sparse setae; scutellum fuscous brown, yellowish apically, postscutellum and abdomen dark brown. Legs a nearly uniform pale yellowish; tarsi variably tinged with pale orange.

Taken on goldenrod or aster at Albany, N.Y. July 6, 1906.

Type Cecid. 508, N. Y. State Museum.

ADDENDA

Campylomyza dilatata n. sp.

Male. Length 1.5 mm. Antennae nearly as long as the body, sparsely haired, fuscous yellowish, 14 segments; face fuscous yellowish, eyes large, black. Mesonotum dark brown. Scutellum yellowish, postscutellum fuscous yellowish. Abdomen a variable fuscous yellowish. Legs a nearly uniform light fuscous yellowish. Easily recognized by the short, stout, greatly dilated subtriangular terminal clasp segment.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely haired, light fuscous yellowish, 13 segments. Color characters about as in the opposite sex.

Bred by Dr M. T. Thompson of Clark University, Worcester, Mass., from earth containing seeds and vegetable debris.

Type Cecid. 1109, N. Y. State Museum.

Lasioptera convolvuli n. sp.

Male. Length 2.25 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, fuscous yellowish basally, 17 segments; face rather thickly clothed with silvery white scales. Mesonotum dark brown, rather thickly and evenly clothed

with yellowish white scales. Scutellum reddish brown with a few coarse setae apically, postscutellum darker. Abdomen a rich dark brown, the first segment rather broadly banded posteriorly with silvery white, the others with submedian rows of small, lunate, silvery white spots and sublateral rows of rather prolonged, silvery white spots, particularly on the second, third and fourth segments, venter suffused with silvery white, genitalia fuscous. Halteres a nearly uniform yellowish orange. Legs mostly a dark brown, the basal half of femora, the femoro-tibio articulation, the extremity of the tibiae and narrow basal annulations on the tarsal segments yellowish white, the bands wider on the posterior legs.

Female. Length 2.5 mm. Antennae with 20 segments. Mesonotum dark brown, sparsely margined laterally and anteriorly with rather long, yellowish hairs, the submedian lines rather thickly ornamented posteriorly with yellowish hairs. Other markings about as in the opposite sex.

Bred from a fusiform stem gall on hedge bind-weed, Convolvulus sepium, May 14, 1907.

Type Cecid. a1465, N. Y. State Museum.

Lasioptera cylindrigallae n. sp.

Male. Length 2 mm. Antennae extending to the base of the abdomen, dark brown, sparsely haired, 15 or 16 segments; face with a conspicuous patch of silvery white scales, the eyes distinctly margined posteriorly with a rather broad band of silvery white scales. Mesonotum dark brown, variably margined laterally and anteriorly with silvery white and yellowish scales, the submedian lines rather sparsely clothed with golden yellow hairs, the median and sublateral areas rather uniformly clothed with short, golden yellow hairs. Scutellum dark brown with numerous yellowish setae apically, postscutellum dark brown. Abdomen dark brown with large, submedian rows of lunate, silvery white spots, the latter on the posterior margins of the segments and extending to the lateral line; genitalia dull yellowish, slightly fuscous apically, venter suffused with silvery white scales. Halteres a nearly uniform pale yellowish. Legs with coxae mostly fuscous, the base of femora yellowish white, the distal portion of tibiae and tarsi dark brown, the latter darker.

Female. Length 2.5 mm. Antennae with 21 to 22 segments. Color characters about as in the opposite sex.

Bred from a uniform enlargement of the upper portions of solidago stems, the gall being 10 cm long by .7 cm in diameter and occurring usually just below the point where the branches arise. Taken at Staten Island April 2, 1907. Adults bred May 6.

Type Cecid. a1408, N. Y. State Museum.

Lasioptera humulicaulis n. sp.

Male. Length 2 mm. Antennae extending to the second abdominal segment, sparsely haired, dark brown, basal segments fuscous yellowish, 21 segments; face sparsely clothed with whitish scales, eyes small, narrowly margined posteriorly with silvery white. Mesonotum dark brown, the submedian lines thickly clothed with long, golden yellow scales; laterally there is a narrow margin of yellowish and silvery white scales, the general surface rather thickly clothed with fine, yellowish scales. Scutellum dark brown with rather numerous yellowish setae apically, postscutellum pale orange. Abdomen dark brown with submedian rows of rather large, lunate, silvery white spots, the markings on the posterior margins of segments one to six, the seventh segment and genitalia yellowish orange. Halteres semitransparent basally, pale orange distally. Legs with coxae and basal portion of femora pale yellowish, the remainder dark brown.

Female. Length 3 mm. Antennae extending to the second abdominal segment, thickly haired, dark brown, the basal segments yellowish, 25 segments. Color characters nearly as in the opposite sex.

Bred May 2, 1907 from a long stem gall on hop. This is a uniform swelling some 50 cm in length, about 1 cm in diameter and with a hollow, blackened interior inhabited by numerous larvae. Taken by Henry Bird at Rye, N. Y., April 17, 1907.

Type Cecid. a1446, N. Y. State Museum.

Lasioptera lactucae n. sp.

Female. Length 1.5 mm. Antennae hardly extending to the base of the abdomen, sparsely haired, dark brown, 19 segments. Mesonotum thickly clothed with bronzy scales. Scutellum yellowish with a few apical setae, postscutellum apparently dark brown. Abdomen dark brown or black, with submedian rows of lunate, silvery white marks on the posterior margins of the segments.

Ovipositor yellowish. Legs fuscous yellowish, the tarsi brown, the distal tarsal segments darker.

Male. Length 2 mm. Antennae with 17 segments. Color characters presumably nearly as in the opposite sex.

Bred by Dr M. T. Thompson of Clark University, Worcester, Mass. from tumor gall on the top of wild lettuce stalks.

Type Cecid. 1102, N. Y. State Museum.

Lasioptera lycopi n. sp.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 18 segments; face with a conspicuous patch of yellowish white scales, the black eyes margined posteriorly with silvery white, especially laterally. Mesonotum shining black, sparsely margined laterally with silvery white scales, the submedian lines faintly indicated by a few hairs. Scutellum a deep reddish brown, postscutellum dark brown. Abdomen a rich brownish black with a submedian row of small, lunate, silvery white spots, the latter on the posterior margins of the segments; laterally there is a row of irregular, silvery white spots slightly produced anteriorly and resting on the posterior margin of each segment; venter dark brown with the median line, the posterior and anterior margins of the segments clothed with silvery white scales. Halteres a pale yellowish salmon, the coxae and base of femora a pale yellowish, distal portion of femora, tibiae and tarsi dark brown, the articulations marked by narrow, white annulations, the latter broader on the posterior tarsi.

Bred May 17, 1907 from an oval, fusiform stem gall on bugleweed, Lycopus communis.

Type Cecid. a1348, N. Y. State Museum.

Lasioptera rosea n. sp.

Female. Length 2 mm. Antennae extending to the second abdominal segment, sparsely haired, dark brown, 22 segments; face rather thickly clothed with whitish scales. Mesonotum dark brown, rather thickly bordered laterally and anteriorly with golden yellow scales, submedian lines thickly clothed with similar scales. Scutellum brownish black, yellowish apically, postscutellum dark brown. Abdomen a dark brown or black, the segments narrowly margined posteriorly with silvery white; ovipositor pale orange, venter irregularly suffused with silvery white scales. Halteres a

pale yellowish orange. Legs a nearly uniform dark brown or black, the posterior pair with very narrow, white annulations at the base of the first tarsal segment.

Bred May 16, 1907 from an oval blister gall on the young leaves of Solidago rugosa.

Type Cecid. a1474, N. Y. State Museum.

Lasioptera vitinea n. sp.

Female. Length 2 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, the basal segments yellowish, 23 segments. Mesonotum dark brown, variably white margined anteriorly and laterally. Scutellum reddish brown, postscutellum yellowish. Abdomen a dark brown, the basal segment thickly clothed with silvery white scales, the second to sixth segments narrowly margined posteriorly with silvery white scales; a crenulate white line laterally. Ovipositor pale yellowish. Halteres pale yellow basally, yellowish white apically. Coxae and femora fuscous yellowish, tibiae light brown, tarsi dark brown.

Bred June 15, 1907, from a leaf petiole gall on grape, taken on Staten Island, N. Y.

Type Cecid. a1415, N. Y. State Museum.

Choristoneura albitarsis n. sp.

Male. Length 2.5 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, yellowish basally, 20 segments. Mesonotum a shining dark brown. Scutellum and postscutellum dark brown. Abdomen evidently badly denuded, a deep salmon with numerous dark brown or black scales dorsally. Halteres yellowish transparent, tarsi dark brown, the segments annulate basally with silvery white.

Female. Length 3 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, fuscous yellowish basally, 24 to 25 segments, eyes narrowly margined posteriorly with silvery white. Mesonotum dark brown or black, broadly margined laterally and anteriorly with silvery white, submedian lines rather thickly clothed with yellowish scales. Scutellum dark brown, thickly clothed apically with whitish scales, postscutellum dark brown. Abdomen dark brown or black, with submedian rows of lunate, silvery white spots. Halteres pale orange basally, light yellowish apically. Legs mostly a dark brown, the articulations

narrowly annulate with silvery white, those on the posterior tarsi broad, the most of the fourth and fifth segments yellowish white.

Bred May 18, 1907 from a stem gall much resembling that of Lasioptera desmodii Felt and taken in open woods at Nassau, N. Y.

Type Cecid. a1477, N. Y. State Museum.

Choristoneura eupatorii n. sp.

Male. Length 1.75 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, the basal segments sparsely clothed with silvery scales ventrally, 17 segments; eyes black, margined posteriorly with silvery white. Mesonotum dark brown or black, the submedian lines sparsely clothed with fine hairs. Scutellum dark brown, postscutellum yellowish or fuscous brown. Abdomen dark brown with submedian rows of small, lunate, silvery white spots, the markings being on the posterior margin of the first to sixth segments, the terminal segments fuscous yellowish, the venter suffused with silvery white scales. Halteres pale yellowish. Legs dark brown, the first tarsal segment and narrow basal annulations on the second to fifth, white.

Female. Length 2.5 mm. Antennae with 23 segments. The other color characters about as in the opposite sex.

Bred May 2, 1907 from an oval or subglobular swelling on the stem of presumably Eupatorium ageratoides, thickly packed with numerous Cecidomyid larvae in closely webbed cocoons. Rather rare on Staten Island.

Type Cecid. a1413, N. Y. State Museum.

Choristoneura flavolunata n. sp.

Female. Length 2.5 mm. Antennae extending to the base of the abdomen, sparsely haired, dark reddish brown, 21 segments; face reddish brown, sparsely clothed with whitish scales, mouth parts fuscous apically. Mesonotum dark brown, almost black, the base of the wing insertions reddish. Scutellum dark brown, with a few yellowish setae apically, postscutellum and abdomen dark brown, almost black, the incisures of the latter dusky reddish, the dorsum of the eighth segment and the ovipositor fuscous yellowish; laterally, though hardly ventrally there is a broken band of five somewhat conspicuous subquadrate patches of silvery white

scales, the venter sparsely clothed with silvery white scales. Legs a nearly uniform black.

Bred from several oval, yellowish, marginal, blister galls on solidago.

Type Cecid. a1430, N. Y. State Museum.

Choristoneura hamata n. sp.

Male. Length 3 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 18 segments; face fuscous with a few whitish scales; head rather thickly clothed with pale yellowish scales posteriorly. Mesonotum dark brown, sparsely margined laterally and anteriorly with yellowish hairs, submedian lines rather thickly clothed with the same. Scutellum dark brown with a few whitish scales, postscutellum dark brown. Abdomen dark brown or black with submedian rows of conspicuous lunate, silvery white spots. Genitalia, fuscous yellowish. Halteres pale yellowish. Legs a variable brown, the tarsi dark brown.

Female. Length 2.75 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 20 to 22 segments. Other color characters about as in the opposite sex.

Bred April 28 and May 18, 1907 from an oval gall on the stem of an unknown weed taken at Albany, N. Y. This enlargement somewhat resembles that made by Lasioptera desmodii Felt.

Type Cecid. a1458, N. Y. State Museum.

Choristoneura hibisci n. sp.

Male. Length 1.75 mm. Antennae hardly extending to the base of the abdomen, thickly haired, dark brown, 16 segments; face fuscous with a conspicuous patch of silvery white scales, the black eyes narrowly margined posteriorly with silvery white. Mesonotum dark brown, narrowly and irregularly margined laterally with golden yellow scales, the submedian lines rather thickly clothed with golden yellow hairs. Scutellum dark brown, sparsely ornamented with silvery white scales and with a few long setae apically, postscutellum dark brown. Abdomen dark brown or black, with submedian rows of somewhat irregular, sublunate, silvery white spots. Halteres pale salmon basally, whitish transparent apically. Legs mostly dark brown, the articulations annulate with white, the bands broader on the posterior tarsi.

Female. Length 2.75 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, the basal segments fuscous yellowish, 23 segments; eyes narrowly margined posteriorly with silvery white. Mesonotum a rich dark brown, the anterior lateral angles narrowly margined with silvery white, the submedian lines sparsely clothed with light golden yellow scales and with broad, submedian, golden vittae anteriorly. Scutellum dark brown or black, rather thickly clothed with silvery white scales, postscutellum dark brown. Abdomen a rich dark brown, with submedian rows of silvery white, transverse, lunate spots on segments one to seven posteriorly; in addition there is a series of longitudinal, lunate spots just above the stigmatal line. Ovipositor pale yellowish, the venter suffused with silvery white scales, except the rather indistinct, yellowish submedian lines. The white scales on the under surface are prolonged laterally and on the margins of the segments, and form a series of triangular marks. Halteres pale yellowish basally and apically, pale salmon subapically. Legs with the femora and coxae basally variably yellowish, the other portions of the legs dark brown, except the base of the tibia and the first tarsal segment, which are narrowly annulate with yellowish white; otherwise the anterior and mid tarsi are nearly uniform brownish black, the posterior tarsi with the extremities of the second tarsal segment narrowly, and those of the others broadly annulate, except the distal end of the fifth segment, with silvery white.

Bred April 25, 1907 from slightly enlarged stems of the rose marsh mallow, Hibiscus moscheutos, taken on Staten Island, N. Y.

Type Cecid. a1410, N. Y. State Museum.

Choristoneura perfoliata n. sp.

Male. Length 2 mm. Antennae very short, sparsely haired, dark brown, 18 segments. Mesonotum dark brown, the submedian lines rather thickly clothed with yellowish setae. Scutellum yellowish brown with a few sparse setae apically, postscutellum fuscous yellowish. Abdomen dark brown, the segments narrowly margined posteriorly with silvery white, the eighth mostly pale yellowish, genitalia fuscous. Legs dark brown, the anterior and mid tarsi narrowly, and the posterior tarsi broadly banded with cinereous.

Female. Length 2 mm. Antennae extending to the base of the abdomen, 24 segments. Color characters nearly as in the opposite sex.

Bred by Dr M. T. Thompson of Clark University, Worcester, Mass. from an oval stem gall on Eupatorium perfoliatum.

Type Cecid. 1101, N. Y. State Museum.

Dasyneura canadensis n. sp.

Male. Length 2 mm. Antennae nearly as long as the body, sparsely haired, dark brown, a few of the terminal segments reddish, the basal segments and mouth parts fuscous yellowish, 17 segments; eyes broadly margined posteriorly with fine, yellowish hairs. Mesonotum reddish brown, sometimes darker, submedian lines narrow, rather thickly clothed with fine hairs. Scutellum pale yellowish red with a few coarse setae apically, postscutellum and abdomen pale salmon, the latter sparsely clothed with fine hairs; genitalia fuscous. Halteres and basal portion of femora pale yellowish, distal portion of femora and tibiae fuscous yellowish, the tarsi a variable fuscous brown.

Female. Length 2 mm. Antennae extending to the third abdominal egment, sparsely haired, dark brown, slightly reddish distally, the basal segments fuscous yellowish, 13 segments. Other characters about as in the opposite sex.

Bred May 1, 1907 from Cecidomyid larvae infesting the seeds of the white spruce, Abies alba. Taken by Dr James Fletcher in the vicinity of Ottawa, Canada in April 1907.

Type Cecid. a1428, N. Y. State Museum.

Dasyneura flavotibialis n. sp.

Male. Length 1.25 mm. Antennae nearly as long as the body, thickly clothed with whorls of long hairs, fuscous yellowish, 11 segments; face fuscous yellowish. Mesonotum a fuscous greenish yellow, the submedian lines rather thickly clothed with long, fuscous hairs. Scutellum a light reddish yellow with long setae apically, postscutellum yellowish. Abdomen dark yellowish red, thickly clothed with dark brown scales and with the segments margined posteriorly with long, dark brown setae, the seventh segment and genitalia fuscous yellowish, venter yellowish red, rather thickly clothed with dark brown scales, except for a narrow

median line; pleurae and coxae yellowish transparent, the latter with the anterior pair of legs rather thickly clothed with long, black setae; femora mostly dark brown or black, yellowish basally; tibiae a nearly uniform yellowish, tarsi fuscous yellowish, the three distal segments black.

Female. Length 2 mm. Antennae extending to the second abdominal segment, sparsely haired, fuscous yellowish, 10 segments. Other characters about as in the opposite sex, except that the tibiae have the distal half fuscous yellowish, darker apically.

Adults bred May 7 and 8 from decaying wood infested by fungus and covered by moss. Taken at Nassau, N. Y.

Type Cecid. a1454, N. Y. State Museum.

Asphondylia sobrina n. sp.

Male. Length 3 mm. Antennae extending to the second abdominal segment, sparsely haired, light yellowish, 14 segments; face fuscous yellowish, eyes large, black. Mesonotum dark brown, the submedian lines rather thickly clothed with yellowish hairs. Scutellum reddish yellow, postscutellum yellowish. Abdomen reddish brown, genitalia yellowish, fuscous distally. Halteres semitransparent basally and apically, fuscous yellowish subapically. Legs a variable light fuscous yellowish.

Female. Length 3.5 mm. Face yellowish. Mesonotum a light fuscous orange, the submedian lines lighter. Scutellum pale yellow, postscutellum yellowish. Abdomen pale orange, the distal segments lighter. Other characters about as in the opposite sex.

Collected and bred by Dr M. T. Thompson of Clark University, Worcester, Mass. from earth containing elm keys and vegetable debris.

Type Cecid. 1108, N. Y. State Museum.

Rhopalomyia arcuata n. sp.

Male. Length 2 mm. Antennae probably as long as the body, sparsely haired, pale straw color and with at least 15 segments; face dark brown. Mesonotum nearly uniform dark brown, the submedian lines sparsely ornamented with fuscous hairs. Scutellum yellowish brown with sparse hairs apically, postscutellum orange brown. Abdomen dark brown, rather thickly clothed with fuscous hairs. Halteres yellowish transparent basally, fuscous apically, coxae fuscous yellowish, rather thickly clothed with fuscous hairs.

Legs nearly uniform pale straw, the femora rather sparsely clothed with fuscous hairs.

Swept from solidago or sweetfern at Albany, N.Y., June 4, 1906.

Type Cecid. 124, N. Y. State Museum.

Rhopalomyia astericaulis n. sp.

Male. Length 2.5 mm. Antennae probably extending to the fourth abdominal segment, sparsely haired, dark brown, 18 segments. Mesonotum reddish brown, darker laterally, the submedian lines rather thickly clothed with long hairs. Scutellum fuscous yellowish, postscutellum yellowish. Abdomen reddish brown with the segments margined posteriorly with long hairs. Halteres whitish transparent basally, fuscous apically. Legs a somewhat variable dark brown.

Collected and bred by Dr M. T. Thompson of Clark University, Worcester, Mass. from an oval twig gall on aster. Probably an inquiline with Choristoneura ramuscula Beutm.

Type Cecid. 1107a, N. Y. State Museum.

Rhopalomyia thompsoni n. sp.

Male. Length 2.5 mm. Antennae nearly as long as the body, sparsely haired, pale yellowish, the basal and distal segments tinged with reddish; 19 segments. Mesonotum dark reddish, the submedian lines sparsely clothed with fine setae. Scutellum pale salmon, postscutellum dark brown. Abdomen a deep brick-red with heavy bands of black scales, genitalia fuscous. Halteres yellowish transparent. Legs mostly black, the coxae and base of femora a variable yellowish.

Female. Length 4 mm. Color characters nearly as in the opposite sex.

Collected and bred by Dr M. T. Thompson of Clark University, Worcester, Mass. from a globular or ovoid, fleshy gall on the rootstock of Solidago rugosa.

Type Cecid. 1100, N. Y. State Museum.

Oligotrophus asplenifolia n. sp.

Male. Length 2 mm. Antennae nearly as long as the body, sparsely haired, light fuscous yellowish, 15 segments. Mesonotum dark brown, the narrow submedian lines and posterior median area yellowish. Scutellum and postscutellum fuscous yellowish. Abdomen a deep orange yellow, the distal segments paler, the incisures

and pleurae pale salmon, genitalia fuscous yellowish. Halteres yellowish transparent. Legs pale yellowish, the femora dorsally blackish, tibiae and tarsi progressively fuscous apically.

Female. Length 1.75 mm. Antennae with presumably 15 segments, other characters about as in the male.

Collected and reared by Dr M. T. Thompson of Clark University, Worcester, Mass. from a fleshy fold or lamina near the midvein on leaves of sweet fern.

Type Cecid. 1103, N. Y. State Museum.

Hormomyia crataegifolia n. sp.

Male. Length 4 mm. Antennae a little longer than the body, sparsely haired, reddish brown, 14 segments. Mesonotum dark brown, the submedian lines sparsely clothed with whitish hairs, a few scattered hairs on the lateral borders. Scutellum dark brown, with a few whitish hairs on each side, postscutellum slightly darker. Abdomen dark red, pleurae darker. Halteres and coxae yellowish red, the remainder of the legs a little paler, with the tarsi somewhat whitish.

Female. Length 4 mm. Antennae extending to the fourth abdominal segment, yellowish red or reddish, sparsely haired, 14 segments. Colorational characters about as in the opposite sex.

Bred from whitish, oval cocoons adhering to Crataegus leaves. Larvae taken from the cockscomb gall on Crataegus.

Type Cecid. a1362, N. Y. State Museum.

Hormomyia needhami n. sp.

Male. Length 6 mm. Antennae extending to the fourth abdominal segment, finely haired, pale fuscous yellowish, the stems semitransparent, 26 segments; face fuscous. Mesonotum yellowish, the anterior and lateral margins bordered by fuscous, the latter slightly produced on the median line. Scutellum and postscutellum pale yellowish, the latter dark brown posteriorly. Abdomen fuscous yellowish, sparsely clothed with fine hairs. Halteres fuscous yellowish. Legs a variable fuscous yellowish.

Taken by Dr James G. Needham at Lake Forest, Ill., June 6, 1906.

Type Cecid. 788, N. Y. State Museum.

Hormomyia truncata n. sp.

Male. Length 3 mm. Antennae nearly as long as the body, thickly haired, pale yellowish, 23 segments; mouth parts fuscous

yellowish. Mesonotum a nearly uniform dark reddish brown, the submedian lines indistinct. Scutellum yellowish red, postscutellum slightly yellowish basally, reddish yellow distally. Abdomen rather thickly clothed with long, fuscous hairs, reddish yellow, the genitalia dark orange. Halteres yellowish basally, fuscous apically. Legs a variable dark brown and reddish yellow, the distal tarsal segments mostly reddish yellow.

Taken by Mr J. G. Jack, near Boston, Mass.

Type Cecid. 817, N. Y. State Museum.

Contarinia consobrina n. sp.

Male. Length 1.5 mm. Antennae longer than the body, thickly haired, pale yellowish or reddish, 14 segments; face yellowish. Mesonotum dark brown. Scutellum reddish, post scutellum fuscous mesially, yellowish laterally. Abdomen yellowish red, fuscous laterally. Coxae, femora and tibiae pale yellowish, tarsi yellowish or variably suffused with carmine.

Taken at Karner, N. Y., May 16, 1906 on fern.

Type Cecid. 61, N. Y. State Museum.

Contarinia tiliae n. sp.

Male. Length 1.5 mm. Antennae a little longer than the body, rather thickly haired, light brown, 14 segments. Mesonotum dark brown. Scutellum an orange brown. Abdomen light brown. Halteres yellow and reddish transparent. Legs mostly yellowish transparent, extremities of tibiae and tarsi with a distinct reddish cast.

Taken at Karner, N. Y., May 16, 1906 on basswood.

Type Cecid. 25, N. Y. State Museum.

Winnertzia calciequina n. sp.

Male. Length 2 mm. Antennae a little shorter than the body, thickly haired, dark brown, yellowish basally, 14 segments; face greenish yellow. Mesonotum dark brown, sparsely clothed with fine, silvery hairs. Scutellum and postscutellum dark brown. Abdomen yellowish green basally, the apical segments light brown. Halteres whitish transparent. Coxae, femora and tibiae mostly pale yellowish, tarsi nearly uniform fuscous.

Taken at Albany, N. Y. July 16, 1906 on pine.

Type Cecid. 561, N. Y. State Museum.

Lasioptera caulicola n. sp.

Female. Length 2 mm. Antennae very short, sparsely haired, dark brown, 23 segments; face sparsely clothed with silvery white scales. Mesonotum dark brown, rather broadly margined laterally and anteriorly with silvery white, the submedian lines sparsely haired. Scutellum fuscous yellowish, postscutellum a little darker. Abdomen dark brown, the basal segments silvery white dorsally, the third and fourth segments rather broadly margined along the median third posteriorly with silvery white, the second segment with an elongate median white dot on the posterior margin, ovipositor pale yellowish. Halteres pale yellowish, apically a light salmon. Coxae fuscous basally, yellowish apically, femora and tibiae dark brown, irregularly and broadly banded at the extremities with silvery white, tarsi dark brown.

Bred June 3, 1907 from apparently normal stems of bush-honeysuckle.

Type Cecid. a1469a, N. Y. State Museum.

Lasioptera palustris n. sp.

Male. Length 1.75 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, the basal segments yellowish, 20 segments; face fuscous yellowish with a rather conspicuous patch of silvery white scales, eyes narrowly margined posteriorly with silvery white. Mesonotum dark reddish brown, variably margined laterally and anteriorly with silvery white, the submedian lines thickly clothed with golden yellow scales, posterior median area reddish brown. Scutellum pale reddish brown with a few yellowish setae apically, postscutellum pale orange. Abdomen dark brown, the basal segments silvery white, the second to fourth segments rather broadly, and the fifth and sixth segments narrowly margined with silvery white, the latter obsolete laterally, the eighth segment pale orange; genitalia fuscous yellowish, venter dark brown with a broad median, silvery white stripe. Halteres pale salmon. Legs mostly brown, the extremities of femora and tibiae variably annulate with light yellowish, the tarsi dark brown.

Female. Length 2 mm. Antennae with 25 segments. Color characters about as in the opposite sex.

Bred May 24, 1907 from a very irregular, fusiform or subglobular stem gall occurring upon an unknown plant in marshy places at West Nyack, N. Y.

Type Cecid. a1443, N. Y. State Museum.

Choristoneura erigerontis n. sp.

Male. Length 2.25 mm. Antennae very short, not extending to the base of the abdomen, sparsely haired, dark brown, yellowish basally, 14 segments; face with a conspicuous patch of silvery white scales. Mesonotum dark brown, the submedian lines sparsely clothed with yellowish setae. Scutellum dark reddish brown, postscutellum dark brown. Abdomen dark brown with rather large, submedian lunate spots on the posterior margin of each segment, incisures pale salmon, genitalia fuscous; venter suffused with silvery white scales. Halteres pale salmon. Legs mostly a variable dark brown, the basal two thirds of femora yellowish, tibiae and the first and last tarsal segments banded basally, and the others narrowly annulate basally and apically with silvery white, the annulations broader on the posterior legs.

Female. Length 2.5 mm. Antennae with 16 segments. Colorational characters about as in the opposite sex.

Bred May 29, 1907 from fusiform stem galls on horseweed, Erigeron canadense, taken at Albany, N. Y.

Type Cecid. a1427a, N. Y. State Museum.

Choristoneura modesta n. sp.

Female. Length 2 mm. Antennae hardly extending to the base of the abdomen, sparsely haired, brown, lighter apically, 18 segments; face sparsely clothed with light scales. Mesonotum black, sparsely margined laterally and anteriorly by pale setae, a few light ones before the wings and on the pleurae. Scutellum a little lighter than the mesonotum. Abdomen black, the segments margined posteriorly with a very narrow line of light scales, interrupted mesially and with a few scattered light scales laterally. Halteres whitish basally, translucent apically, fuscous subapically. Legs black above, lighter beneath.

Male. Length 2.25 mm. Antennae with 14 segments. Color characters nearly as in the opposite sex.

Bred May 20, 1907 presumably from small, oval swellings appearing much like arrested buds, on the stems of horseweed, Erigeron canadense, taken at Albany, N. Y.

Type Cecid. a1427, N. Y. State Museum.

Cecidomyia ramuli n. sp.

Female. Length 2.5 mm. Antennae extending to the fifth abdominal segment, sparsely haired, pale yellowish, 14 segments; face light fuscous yellowish, eyes rather large, black. Mesonotum yellowish brown, the submedian lines lighter, rather thickly clothed with long hairs, the posterior median area light reddish yellow. Scutellum light reddish with a few apical setae, postscutellum reddish brown. Abdomen deep reddish orange, the segments sparsely clothed posteriorly with fine hairs. Halteres yellowish transparent basally and apically, light fuscous subapically. Coxae and base of femora yellowish transparent, the remainder of femora, tibiae and tarsi a uniform dark brown, the second and third tarsal segments on the posterior legs fuscous yellowish.

Bred May 25, 1907 from a small, monothalamous, almost imperceptible enlargement on the smaller twigs of Cornus paniculata, taken at Albany, N. Y.

Type Cecid. a1384, N. Y. State Museum.

Choristoneura solani n. sp.

Female. Length 1.5 mm. Antennae extending to the base of the abdomen, sparsely haired, dark brown, 23 segments, the black eyes sparsely margined posteriorly with silvery white. Mesonotum dark reddish brown, broadly and irregularly margined laterally and anteriorly with yellowish white, the submedian lines rather thickly clothed with short, yellowish setae. Scutellum reddish yellow with a few small setae apically, postscutellum reddish brown. Abdomen dark brown, the first abdominal segment thickly clothed with yellowish white scales, the second to fifth segments narrowly margined posteriorly with silvery white, the latter rather broadly interrupted along the median lines; ovipositor pale yellowish, venter rather thickly suffused with silvery white scales. Halteres pale yellowish transparent. Coxae and base of femora mostly pale yellowish, the other parts of the legs a variable dark brown, the tarsi lighter.

Bred April 16, 1896 from stem gall on Solanum carolinense taken at Ivy City, D. C.

Type Cecid. 903, N. Y. State Museum, No. 6822 U. S. Bureau Entomology.

Asphondylia diervillae n. sp.

Female. Length 3.5 mm. Antennae extending to the fourth abdominal segment, sparsely haired, grayish brown, 14 segments; face fuscous, eyes large, black, margined posteriorly with long, fuscous setae. Mesonotum dull slate color, irregularly margined laterally with long, grayish setae, the submedian lines thickly clothed with similar setae. Scutellum slaty gray with long setae apically, postscutellum fuscous yellowish. Abdomen a nearly uniform dark brown, the segments sparsely margined posteriorly with long, gray setae, pleurae and abdomen rather thickly clothed with yellowish white setae. Halteres yellowish basally, fuscous apically, coxae a dull gray, the base of femora dull yellowish, the other portions of the legs dark brown, the tarsi darker, almost black.

Bred May 23, 1907 from a green bud gall on bush-honeysuckle taken at Albany, N. Y.

Type Cecid. a1469, N. Y. State Museum.

EXPLANATION OF PLATES

Plate 1

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Thysania zenobia Cramer, natural size

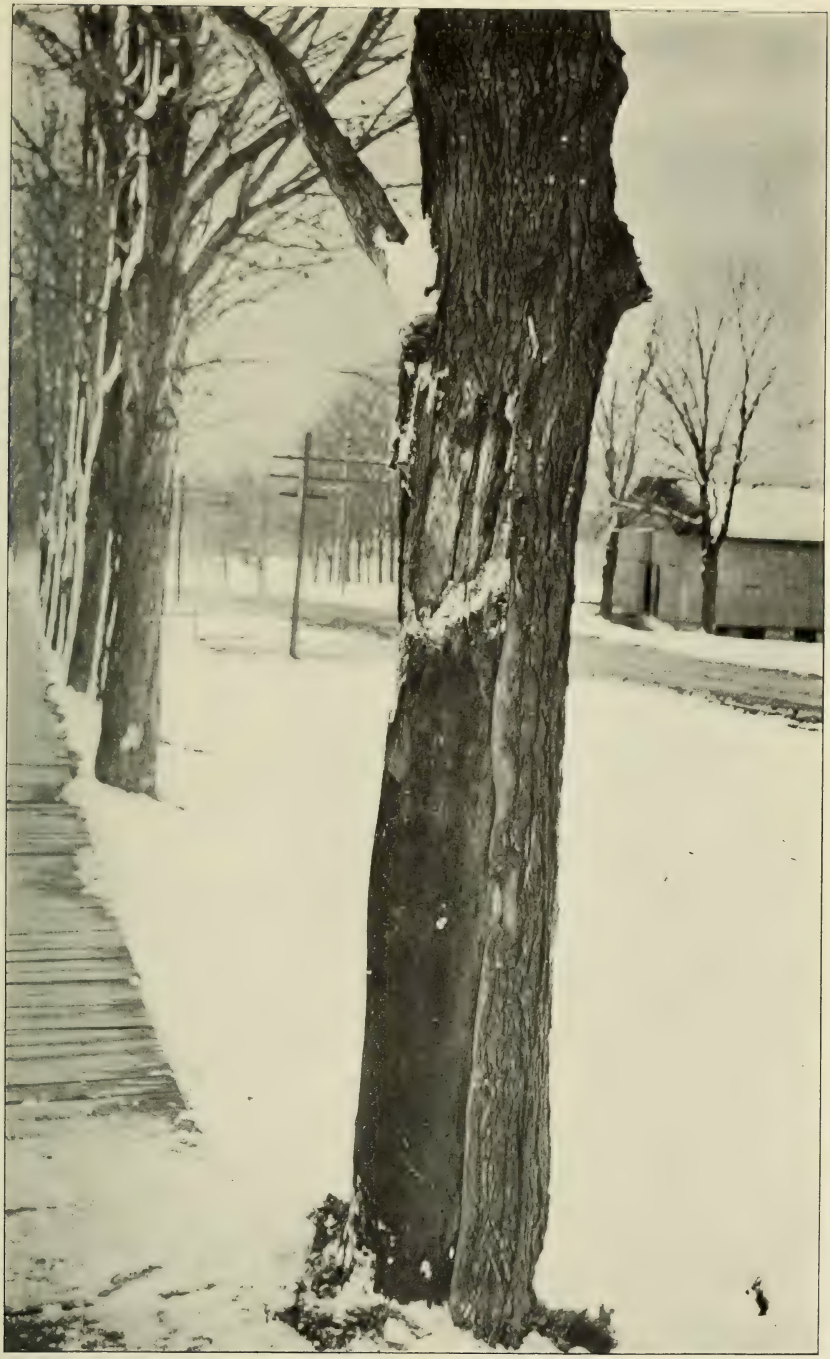
Plate 1

Thysania zenobia Cramer

Plate 2

Work of the sugar maple borer. Photograph of a sugar maple tree which was half girdled by the sugar maple borer (*Plagionotus speciosus* Say) in September 1889. Photographed November 1906

Plate 2



Le Roy, N. Y. Nov. 1906

Work of sugar maple borer

Plate 3

Apple twig from Annandale, N. Y., showing 10 year old oviposition scars of the 17 year cicada (Tibicen septendecim Linn.). The injury was inflicted in 1896; photographed September 1906

Plate 3

Photo July 1906

Work of periodical cicada

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New York State Education Department

New York State Museum

JOHN M. CLARKE, Director

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